THE *DIPTERA-BRACHYCERA* OF TASMANIA.

PART III. FAMILIES *ASILIDÆ, BOMBYLIDÆ, EMPIDÆ, DOLICHOPODIDÆ, & PHORIDÆ.*

BY ARTHUR WHITE.

(Read 14th Aug, 1916. Issued separately 30th Nov., 1916.)

Family VII. **ASILIDÆ.**

This family comprises the well-known and universally distributed "Robber Flies," so called on account of their predaceous habits. The species are of medium or large size, the head attached to the thorax by a slender neck; front excavated between the eyes, which are separated in both sexes; thorax with well-developed bristles; wings with the normal venation of the *Brachycera*, posterior cells five in number, the three basal cells always long.

The *Asilidæ* are strongly-built predaceous flies, attacking insects of widely differing orders. I have seen a specimen of *Asilus alcetus* having as its prey a dragonfly very much larger than itself. In Tasmania the species are only of moderate size, but on the mainland of Australia some very large species occur, one of these—*Phellus glaucus*—being one of the largest known diptera.

The *Asilidæ* are divided into four subfamilies, which are distinguished as follows:—

1. "Marginal cell open, or if just closed then the radial vein sharply curved up at its end so as to form a blunt end to the marginal cell." (Verrall) 2

"Marginal cell closed, and with a short petiole, the subcostal and radial veins meeting at an almost equal curve." (Verrall) 3

2. Alula and hind-angle of wing missing; tarsal claws very long; abdomen extremely narrow and greatly elongated **Leptogastrinæ**

Alula and hind-angle of wing usually present; tarsal claws short; abdomen not extremely narrow, and only moderately elongated. **Dasypogoninæ**

3. Third antennal joint with an arista. **Asilinæ**

Third antennal joint without either style or arista **Laphrinæ**

Subfamily **Leptogastrinæ.**

This subfamily, which is nearly allied to the *Dasypogoninæ*, is represented in the Australian Region by the single genus *Leptogaster.*

27. LEPTOGASTER, Meig.

(*Gonypes*, Latr.)

Extremely slender elongated flies, with long hind legs, and greatly elongated tarsal claws.

Head wider than the thorax. Antennæ placed high, making the front short, the first and second joints very short, and of about equal length, the third longer than the first two together, and terminated by an arista-like style. Moustache scanty, face long, and broader than the front. Thorax somewhat arched and nearly bare; two presutural and two supraalar bristles present. Abdomen very long and thin. Legs long and thin, the hind pair much elongated; tarsal claws greatly enlarged. Wing small, and always shorter than the abdomen, the hind-angle quite sloped away, and the alula wanting.

The species belonging to this genus are, with the possible exception of the genus *Neoitamus*, the most difficult to identify of any of the Australian Asilidæ. The different species resemble one another very closely, and further difficulty is caused by the different appearance of the two sexes, the female being usually very much the larger. After examining a considerable number of species from different parts of Australia, I have come to the conclusion that some of the characters usually relied upon for distinguishing the different species are really of little value. This applies particularly to the colouring of the thorax and the position of the cross-vein closing the second basal cell, characters that vary very much in the same species. The only characters that seem to me of general use are the colouring of the legs, the relative length of the wings, and the shape of the second submarginal cell (the space enclosed within the cubital fork), which may be either slightly contracted towards the wing margin or else wide open without any sign of contraction. In a former paper, "New Australian Asilidæ" (Pap. and Proc. Roy. Soc. Tasm., 1913), I gave a table of the various known Australian species. Since then I have had the opportunity of examining Walker's type of *L. pedanius* in the British Museum collection, which Miss Ricardo states is the same species as Macquart's L. *geniculata*, and I find that this species is apparently identical with *L. antipoda*, *Bigot*. The species, therefore, given in my list as *L. antipoda* should be *L. geniculata* (which name has priority), whilst that given as *L. geniculata* is a new species, which I now describe under the name *L. autumnalis*.

This makes the Tasmanian species at present distinguished five in number.

Table of the Tasmanian Species of Leptogaster.

1. Hind femora banded; second submarginal cell slightly contracted at wing margin. GENICULATA, Macq.

Hind femora not banded; second submarginal cell not in the slightest contracted at wing margin. 2

2. Face, front, back of head, thorax and abdomen entirely black AUTUMNALIS, Sp. nov.

Colouration not entirely black. 3

3. Hind femora bright orange; wings short. ÆSTIVA, White.

Hind femora brown. 4.

4. Very small species; length of wing ♀ 5.5 - 6 mm. Always clear. VERNALIS, White.

Large species; length of wing ♀ 9 - 10 mm., usually smoky. FUMIPENNIS, White.

LEPTOGASTER GENICULATA, Macq.

Syn. *Leptogaster pedanius*, Walk.
L. antipoda, Bigot.

Face and front white; thorax brown; abdomen brown or grey; legs fawn-coloured, the posterior femora with a dark brown band; wings with the second submarginal cell slightly contracted towards the wing margin.

Length. Male, 8 mm.; female, 10 mm.

Length of wing. Male, 5 mm.; female, 7 mm.

Hab. South Bridgewater. (Also in Victoria and New South Wales).

Female. Face and front white; moustache white, scanty. Eyes closely approximated. Back of head grey. Antennæ with the first two joints dark reddish, third black. Thorax brown, indistinctly striped. Abdomen brown, with pale segmentations, practically bare. Legs fawn-coloured, with knees very narrowly black; posterior femora indistinctly banded with brown, and posterior tibiæ with apex dark brown; tarsi dark brown, with first joint white at the base. Wings shining, tinged with brown, the second submarginal cell slightly contracted towards the wing margin.

Male. No specimen of the male is at present known from Tasmania, so I take the following particulars from a New South Wales specimen, kindly sent me by Dr. Ferguson. It differs from the female in its smaller size and darker hind femora, the brown band occupying almost the whole surface, leaving merely a fawn-coloured ring towards the apex; the thorax is duller and darker, the abdomen grey instead of brown, and the wings completely hyaline; genitalia large, with thin white apical hairs, and longer black hairs on either side.

This species may be recognised without much difficulty by the banded posterior femora, and by the second submarginal cell being slightly contracted towards the wing margin, instead of being absolutely wide open, without the slightest sign of any contraction, as in the other species.

Of this species I took a single example in the hills at South Bridgewater on January 19, 1912. It seems to occur much more commonly in Victoria and New South Wales.

Leptogaster æstiva, White.

Thorax and abdomen olive, the former indistinctly striped, all femora bright orange with black knees.

Length. Male, 10.5 mm.; female, 13.5 mm.

Length of wing. Male, 6 mm.

Hab. Bagdad Valley.

Male. Face white, moustache white, scanty. Antennæ black. Front pale yellowish. Thorax olive, faintly striped, the sides pale grey. Abdomen olive; first segment with a few white bristles on each side. Legs with all femora orange, the posterior pair whitish at the base; knees black; anterior and middle tibiæ orange, posterior tibiæ brown, pale at base, and becoming gradually darker towards the apex, and bearing a few white bristles; tarsi black, the first joint with basal three-fourths white. Wings very short, clear, with black veins.

Female resembles the male, but is larger; the abdomen has sides and segmentations grey, the grey colour encroaching on the second and third segments, in which the olive colour is reduced to a dorsal stripe, narrow above and broader below.

L. æstiva is distinguished from all the other Tasmanian species by its bright orange instead of fawn-coloured femora, also from all the species except *L. vernalis* by its very small, short wings.

This species occurs somewhat sparingly amongst long grass on greenstone hills. My dates range from January 12 to February 1.

LEPTOGASTER VERNALIS, White.

A very small, delicate species, with short wings. Thorax brown or grey, striped or unstriped; abdomen black or brown; legs brown, with base of posterior femora and tibiæ whitish.

Length. Male, 7.5 - 8 mm.; female, 9 - 10.5 mm.
Length of wing. Female, 5.5 - 6 mm.
Hab. Bagdad Valley.

Male. Face and moustache white. Antennæ black. Front pale yellowish. Thorax brownish, with one median and two lateral broad brown stripes, which occupy the greater part of the dorsal surface; sides and scutellum pale grey. Abdomen black, with segmentations indistinctly paler; the first segment with a few white bristles on each side. Legs brown, with knees darkened; posterior femora and tibiæ whitish at the base, the latter with white bristles; tarsi with basal half of first joint white, remainder brown. Wings very short, clear, veins black.

Female much larger than the male. Thorax brown, indistinctly striped. Abdomen dark olive-brown.

This species agrees with *L. æstiva* in having very small short wings, but is distinguished from that species by the brown instead of bright orange femora, and by its smaller size. From the other Tasmanian species it is distinguished by its very small short wings and small size. It most closely resembles clear-winged specimens of *L. fumipennis*, but in case of doubt the small short wings distinguish it.

L. vernalis occurs somewhat sparingly amongst long grass or settled on low vegetation. My dates range from November 9 to January 12.

LEPTOGASTER FUMIPENNIS, White.

A large robust species. Thorax brown with, usually, three broad brown longitudinal stripes; abdomen black, with sides and segmentations grey; femora very dark brown; wings large, veins very conspicuous, and usually suffused with brown round the small cross-vein.

Length. Male, 12 mm.; female, 13 - 15 mm.
Length of wing. Female, 9 - 10 mm.
Hab. Generally distributed. (Also in Victoria and New South Wales).

Female. Face yellow or yellowish white; moustache white; back of head with a row of stiff black bristles. Antennæ black. Thorax brown, with, usually, three very broad, shining, dark brown stripes; sides grey; scutellum covered with grey tomentum. Abdomen unusually robust, olive-black, with sides, shoulders of segments, and segmentations grey; first segment with, usually, four black bristles on each side, and a few white hairs. Legs dark brown, with knees black; posterior tibiæ whitish at base, with black and white bristles, which vary considerably in different individuals; tarsi black, the first joint with basal three-fourths yellowish. Wings large, veins very conspicuous, the region surrounding the small cross-vein usually suffused with brown.

Male is much rarer than the female. The few specimens that I have seen are considerably smaller in size, and have the wings smaller and more smoky in appearance.

Variation. Although this species has typically smoky wings, yet specimens may be met with in which the wings are perfectly clear; these may represent a distinct species, but I am unable to find any satisfactory distinction. Some specimens have the thorax unstriped. In Victoria I have taken a specimen, probably belongiing to this species, which is only 11 mm. in length, has the thorax olive-brown, and the wings clear. From New South Wales, however, Dr. Ferguson has kindly sent me three specimens for examination, which are quite typical.

This species in typical specimens may be easily identified by the smoky wings and large robust size; in smaller specimens with clear wings, however, identification is not so easy, and it is necessary to rely on negative characters. From *L. geniculata* it may be distinguished by the unbanded hind femora; from *L. æstiva* by the dark brown instead of orange femora; from *L. vernalis* by the longer wings and larger size; and from *L. autumnalis* by the darker femora, lighter thorax and abdomen, and larger size.

L. fumipennis occurs commonly in the bush, and seems to be generally distributed. The female is the sex usually met with. My dates range from November 18 to January 18.

LEPTOGASTER AUTUMNALIS. Sp. nov.

Face, front, back of head, thorax and abdomen black, without any sign of lighter colouration; femora and tibiæ fawn-colour, with knees black, the posterior femora with a black longitudinal stripe, extending from the base to the apex, on each side; wings of medium length and always clear.

Length. Female, 10 mm.

Length of wing. Female, 7 mm.

Female. Face, front, and antennæ black. Moustache white, scanty. Back of head, thorax, and abdomen black, without any sign of lighter colouration. Legs with femora and tibiæ fawn-coloured, the posterior femora with a black longitudinal stripe on each side, extending from the base to the apex, that on the outer side being the broader. (In *L. geniculata* the dark marking on the hind femora consists of a circular band or ring.) Posterior tibiæ not conspicuously paler at the base; tarsi with first joint white, remaining joints brown, with apices of all joints black. Wings of medium length, always perfectly clear; halteres dull brown.

This species may be recognised without much difficulty by its uniform black colouration. It is an insect of the late summer and autumn, and probably does not appear on the wing until the other species of *Leptogaster* are over. I have only met with it in the bush at Bagdad, where it frequents low vegetation. My dates range from February 13 to March 2.

Subfamily **Dasypogoninæ**.

This subfamily is numerously represented on the mainland of Australia, but in Tasmania only five genera are known to occur. In all these genera the marginal cell of the wings is completely open.

Table of the Tasmanian Genera of Dasypogoninæ.

1 Abdomen constricted at the base; antennæ with no very distinct terminal style. 2

Abdomen not constricted at the base; antennæ with a distinct terminal style. 4

2. Small humpbacked species with bright red thorax. Cabasa, Macq.

Larger species, not humpbacked, and thorax not red 3

3. Antennæ about the same length as head, the third joint hardly broadened. Brachyrrhopala, Macq.

Antennæ four times the length of head, the third joint conspicuously broadened. Erythropogon, White.

4. Fourth posterior cell closed at some distance above the wing margin; wings very short.
BATHYPOGON, Loew.
Fourth posterior cell open; wings long.
STENOPOGON, Loew.

28. CABASA, Walk.

Small, humpbacked species, with red thorax, and wings partly or altogether black.

Antennæ a little longer than the head, the first joint rather longer than the second, the third strap-shaped, about twice the length of the first two joints together, and terminating bluntly without any style or arista. Thorax extremely gibbous. Abdomen a little constricted at the base. Legs rather slender, with a few thin bristles. Wings large, the four posterior cells all wide open.

Table of the Tasmanian Species of Cabasa.

1. Thorax red; abdomen violet-black or greenish-black. 2
2. Wings entirely black. PULCHELLA, Macq.
Wings with basal half black, apical half hyaline.
RUBRITHORAX, Macq.

CABASA PULCHELLA, Macq.

Syn. *Cabasa rufithorax*, Walk.

Thorax red; abdomen violet-black or greenish-black; wings entirely brownish-black.

Length. Male and female, 6 - 9 mm.

Hab. Generally distributed. (Also in Victoria and Queensland.)

Male and Female. Face black, with white tomentum at sides. Moustache, antennæ and front black. Thorax red, with a black anterior dorsal stripe, and small black spots on shoulders and at base of wings; scutellum black. Abdomen violet-black or greenish-black, with segmentations marked at the sides with white. Legs black. Wings entirely brownish-black.

This species may be easily recognised by its humpbacked shape, red thorax, and wholly black wings. It is not common, but seems to be widely distributed in the Tasmanian bush. My dates range from January 11 to February 15.

CABASA RUBRITHORAX, Macq.

Syn. *Dasypogon venno*, Walk.

Thorax red; abdomen violet-black or greenish-black; wings with basal half black, apical half hyaline.

Length. Male, 6 mm.

Hab. Bagdad.

Male. Face and front black, with grey tomentum; moustache yellowish. Thorax red, with a black anterior dorsal stripe, and small black spots on shoulders and at base of wings; scutellum black. Abdomen violet-black or greenish-black, with a little white pubescence at sides. Legs black. Wings with the basal half brownish-black, the apical half hyaline.

This species is at once distinguished from *C. pulchella* by the wings having only the basal half black, instead of being entirely black.

C. rubrithorax appears to be generally rare. I have personally only come across a single specimen, which occurred in the bush at Bagdad on February 13, 1913.

29. BRACHYRRHOPALA, Macq.

Antennæ about the same length or a little longer than the head; abdomen club-shaped; wings either hyaline or partly brown or black; anterior tibiæ with a terminal curved spine.

Antennæ with the first joint rather longer than the second, the third slightly longer than the first two joints together, and provided with a very small style. Thorax not gibbous (which distinguishes the genus from *Cabasa*) and without a stout spine on each side (which distinguishes it from *Chrysopogon*). Abdomen club-shaped, but differing much in shape in the different species. Legs with scattered bristles, the anterior tibiæ with a terminal curved spine, which is sometimes obscure. Wings with the four posterior cells and anal cell open, either hyaline, or more generally with brown or black markings.

Of this genus seven or eight species are known to occur in the Australian region, four of which are found in Tasmania.

Table of the Tasmanian Species of Brachyrrhopala.

1. Wings clear; abdomen and legs red. NITIDUS, Macq.
   Wings partly brown. 2
2. Wings brown on fore border, remainder hyaline. LIMBIPENNIS, Macq.
   Wings brownish, hyaline in centre. FENESTRATA, Macq.
   Wings with basal half brown, apical half hyaline. RUFICORNIS, Macq.

BRACHYRRHOPALA NITIDUS, Macq.

Wings clear; thorax black; abdomen and legs red.

Length. Male and female, 14-18 mm.

Hab. Bagdad Valley; Mount Arthur.

Male and female. Face covered with bright yellow tomentum; moustache consisting of a few long, yellow, bristle-like hairs. Antennæ red. Thorax black, the sides yellow, with yellow bristles. Abdomen dark reddish, unusually slender, and hardly club-shaped. Legs entirely red, with pale red bristles. Wings large, hyaline, with a yellow tinge towards the costal margin.

This species may be met with in March, flying in the bright sunshine with great rapidity, but seems to be generally uncommon.

BRACHYRRHOPALA LIMBIPENNIS, Macq.

Syn. *Brachyrrhopala maculinervis,* Macq.
Dioctria tasmaniæ, Walk.

Wings with fore border dark brown, remainder hyaline; thorax black; abdomen reddish-black; legs red or black, the base of tibiæ usually yellow. A variable species, both as regards size and colouration.

Length. Male and female, 12 - 20 mm.

Hab. Generally distributed. (Also in Victoria and Queensland.)

Male and female. Face covered with yellow tomentum, and bearing two black stripes, which are joined above. Moustache rather bushy, yellow. Antennæ reddish-black, the third joint usually the darkest. Front and thorax black. Abdomen reddish-black, the third and fourth segments with narrow pale yellow hind margins. Legs with femora and tibiæ reddish-black, the tibiæ usually with the base yellow; tarsi red or black; bristles of legs black. Wings large, the fore border deep brown, carried down centrally (at the base of the discal cell) in the form of a black spot; remainder of wing hyaline.

Variation. An unusually small male taken at Mangalore on October 18, 1914, has a rounded black spot on the face, instead of two black stripes, third joint of antennæ light red, and legs light red with femora black below.

This species is easily recognised by the dark fore border of the wings. It may be met with commonly frequenting flowers in the bush, and seems to be generally distributed. My dates range from October 18 to December 26.

BRACHYRRHOPALA FENESTRATA, Macq.

Syn. *Codula fenestrata,* Macq.
Brachyrrhopala victoriæ, Röder.

Wings brown, with a hyaline spot in centre, thorax black; scutellum red; abdomen a rounded club-shape, black, with yellow bands on the second, third, sixth, and seventh segments.

Length. Male and female, 10 mm.

Hab. Generally distributed. (Also in Victoria.)

Male and female. Face black, with yellowish-grey tomentum at sides; moustache yellow. Antennæ red. Front black. Thorax considerably arched, brownish-black, with long white hairs; scutellum red. Abdomen short, a rounded club-shape (instead of a lengthened club-shape as in *B. nitidus* and *B. limbipennis*), black, with yellow bands on posterior margins of the second, third, sixth, and seventh segments. Legs with femora black on basal half, red on apical half; tibiæ red, with apex black; tarsi black; femora and tibiæ with a few small black and red bristles. Wings short, brown, darkest along the costal margin, the discal cell and basal half of first posterior cell hyaline.

This species may be easily recognised by the brownish wings, with a hyaline spot in centre, and the short abdomen of a rounded club-shape. It seems to be generally distributed in the Tasmanian bush, but is not common. My dates range from January 4 to March 3.

B. fenestrata differs so much from *B. nitidus* and *B. limbipennis* in the shape of the abdomen and much shorter wings that it might well be made the type of a new genus. It seems to be nearly allied to the genus *Codula*, but differs in having a curved terminal spine on the anterior tibiæ; this character, however, in some specimens is difficult to make out, and I am somewhat doubtful of its value as a generic character.

BRACHYRRHOPALA RUFICORNIS, Macq.

This species is unknown to me, and I take the following particulars from Miss Ricardo's description.

Wings with the basal half brown, apical half hyaline; thorax and abdomen black, the latter with yellow bands; antennæ and legs red.

Length, 6mm.

Hab. Tasmania and Queensland.

Face black, with white tomentum; moustache white. Front black. Antennæ red, a little brown at the apex. Thorax black, with scanty yellow tomentum; scutellum testaceous. Abdomen black, with yellow bands. Legs red, the anterior half of posterior femora and base of intermediate pair black; anterior tarsi black. Wings with basal half reddish-brown, apical half hyaline.

30. ERYTHROPOGON, White. (Fig. 26.)

Antennæ about four times the length of the head, the third joint conspicuously broadened; abdomen long and club-shaped, much constricted towards the base; wings large, with all the posterior cells and the anal cell open.

Face long and flat, descending in a straight line from the antennæ to the moustache, the latter very small, and confined to the oral margin. Antennæ placed extremely high, projecting horizontally forwards in a line with the vertex, about four times the length of the head, the first joint twice the length of the second, the third three times the length of the first and second together, much broader than either of them, and terminated by a rounded tip, which seems somewhat separated from the rest of the joint, although it does not form a distinct style. Thorax with shoulders produced into prominent tubercles. Abdomen long and club-shaped, much constricted towards the base. Legs with femora practically bare; tibiæ with a few bristles, the anterior pair with a small and inconspicuous apical curved spine. Wings large, with all the posterior cells and anal cell open.

This genus is nearly allied to *Brachyrrhopala*, but is distinguished by the very much longer antennæ. Only one species is at present known.

ERYTHROPOGON ICHNEUMONIFORMIS, White. (Fig. 26.)

Thorax black; abdomen with basal half red, apical half reddish-black, fourth segment with a white tomentose spot on either side; legs yellowish-red; antennæ with the first two joints red, third black.

Length. Male, 15 mm.; female, 13 - 17 mm.

Hab. Southern and northern Tasmania, also in Victoria.

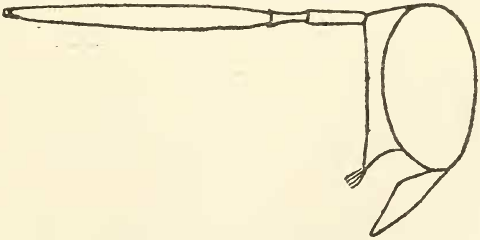

Fig. 26. Head of *Erythropogon ichneumoniformis.*

Male. Face red-brown, with a few scattered white hairs; moustache composed of a few pale golden bristles. Front black. Antennæ with the first two joints red, third black. Thorax black, without bristles, but with a little white pubescence at sides, especially posteriorly; scutellum red-brown without either bristles or pubescence. Abdomen with the three first segments red, remaining segments reddish-black. Legs yellowish-red, the posterior pair slightly the darkest; posterior tibiæ with white bristles. Wings yellow-brown, with all the posterior cells and anal cell open, though the fourth posterior is slightly, and the anal considerably, contracted on the wing margin.

Female resembles the male very closely, but the thorax is slightly browner, and the fourth abdominal segment bears a white tomentose spot on each side.

Variation. A male bred by Mr. Spry from material obtained at Fern Tree Gully, Victoria, is only 11 mm. in length, and has the wings with basal two-thirds bright golden yellow, apical third hyaline.

E. ichneumoniformis is widely distributed in the Tasmanian bush, where it may be found resting on low vegetation, but it is by no means a common species. My dates range from February 9 to March 3.

31. BATHYPOGON, Loew. (Fig. 27.)

Abdomen longer than the wings, not constricted at the base; wings very short, the fourth posterior cell closed at some distance above the wing margin, the vein closing it almost in a line with that closing the discal cell.

Face with a large centre tubercle, which is covered with a large bushy moustache, reaching almost to the antennæ. Antennæ a little longer than the head, the first joint about twice the length of the second, the third about twice the length of the first and second together, and terminated by a distinct pointed style. Thorax rather long, very bristly posteriorly; scutellum with marginal bristles. Abdomen long and fairly stout, not in the least club-shaped or in any way constricted at the base, the sides either bare or with short bristly hairs; genitalia of male large and prominent. Legs stout and bearing long bristles. Wings remarkably short; the fourth posterior cell closed at some distance above the wing margin, the vein closing it almost in a line with that closing the discal cell; the other posterior cells open; anal cell closed.

The species belonging to this genus occur settled on the ground in dry situations. I have noticed a specimen of *B. brachypterus* having as its prey a moth as long as itself. In Tasmania two species are known to occur.

Table of the Tasmanian Species of Bathypogon.

1. Moustache yellow; antennæ entirely black; bristles of thorax, scutellum, and tibiæ yellow.
BRACHYPTERUS, Macq.
2. Moustache white; first joint of antennæ red; bristles of thorax, scutellum, and tibiæ black. (A blacker and more slender species.)
NIGRINUS, Ricardo.

BATHYPOGON BRACHYPTERUS, Macq.

Moustache yellow; antennæ entirely black; thorax deep brown, whitish at sides; abdomen deep brown, with bright golden-yellow pubescence; femora black above, red beneath; tibiæ black or red; bristles of thorax, scutellum, and tibiæ, yellow.

Length. Male and female, 18 - 20 mm.

Hab. Mangalore. (Probably generally distributed.)

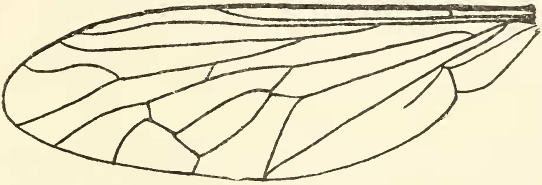

Fig 27. Wing of *Bathypogon brachypterus.*

Male and female. Face and front yellowish-grey; moustache either wholly yellow or black above and yellow below. Antennæ black. Thorax deep brown, with one broad or two narrow anterior dark brown stripes; sides and two short posterior stripes yellowish-white; posterior bristles long, yellow; bristles of scutellum yellow. Abdomen deep brown, with golden-yellow pubescence, which is longest on the posterior outer margins of each segment. Legs with femora black above, red beneath, covered with dense, long, yellowish-white hairs; tibiæ red or black, covered with yellowish pubescence, and bearing long yellow bristles. Wings varying in tint from light grey to yellow-brown.

This species somewhat resembles *B. nigrinus*, but is a more robust and more brightly coloured species; the moustache is bright yellow instead of white, and the bristles on the thorax, scutellum, and tibiæ are yellow instead of black.

B. brachypterus occurs commonly at Mangalore, and though apparently local, is probably widely distributed in Tasmania. It also occurs in Victoria, New South Wales, and Queensland. My dates range from January 4 to February 15.

BATHYPOGON NIGRINUS, Ricardo.

Moustache white, with a few black bristles above; antennæ with first joint red, second and third black; thorax deep brown, white at sides; abdomen brownish-black; femora black above, red beneath; tibiæ reddish; bristles of thorax, scutellum, and tibiæ black.

Length. Male and female, 13 - 18 mm.

Hab. Mangalore.

Male and female. Face reddish, covered with white tomentum; front brown. Antennæ with first joint red, second and third black. Thorax deep brown, indistinctly striped, the sides white; bristles and bristles of scutellum black. Abdomen brownish-black, almost bare, but with a little depressed yellowish-white pubescence. Legs with femora black above, red beneath, bearing sparse white pubescence; anterior tibiæ red, posterior black, bristles black, but with a few white bristles at extreme apex; tarsi black. Wings hyaline or tinged with brown, particularly at apex.

Variation. Tasmanian specimens show little variation, but a female from Victoria has the tibiæ yellow-brown.

This is a more slender and generally blacker species than *B. brachypterus.* It may be recognised at once by the bristles of the thorax, scutellum, and tibiæ being black instead of yellow, and by the first antennal joint being red instead of black.

B. nigrinus may be met with settled on the ground in sandy places. It occurs sparingly during the month of January.

32. STENOPOGON, Loew.

(*Gonioscelis,* Schin.)

Face very narrow; abdomen much elongated, but not constricted at the base; wings large, the fourth posterior cell open.

Face very narrow, the narrowest part being at the base of the antennæ; moustache long and bushy. Antennæ a little longer than the head, the first joint about twice the length of the second, the third about equal in length to the first two together, and provided with a short blunt style. Thorax long and hairy, with lateral and posterior bristles; scutellum with weak marginal bristles. Abdomen greatly elongated, and, in dried specimens, much compressed laterally, but not constricted at the base. Legs powerful; femora and tibiæ with numerous strong bristles. Wings large and broad, either hyaline or tinted with brown or yellow, but without any definite markings; first posterior cell (in Australian species) wide open; fourth posterior cell open, but constricted on the wing margin; anal cell closed on the wing margin or very slightly open.

The species belonging to this genus, like those of *Bathypogon*, are strong, predaceous insects; their habits, however, are somewhat different, as, instead of settling on the ground, they frequent low vegetation. I have noticed a specimen of *S. elongatus* having as its prey a specimen of the March Fly, *Tabanus microdonta*.

Stenopogon is represented in Tasmania by the single species *S. elongatus*, which also occurs commonly on the Australian mainland.

STENOPOGON ELONGATUS, Macq.

Syn. *Dasypogon flavifacies*, Macq.
D. digentia, Walk.
D. lanatus, Walk.
D. thalpius, Walk.
D. agave, Walk.
Stenopogon fraternus, Bigot.

The above synonymy is given on the authority of Miss Ricardo, who has examined both Walker's and Macquart's types.

Moustache bright yellow; thorax black, with yellow tomentum at sides; abdomen black, with yellow side stripes; femora red and black or yellow and black; tibiæ red or yellow; tarsi black; bristles of femora, tibiæ, and tarsi black; wings hyaline or tinged with brown.

Length. Male, 17 - 23 mm.; female, 20 - 25 mm.

Hab. Generally distributed. (Also in Victoria, New South Wales, Queensland, and Western Australia.)

Male and female. Face yellow; moustache bright yellow; beard pale yellow. Antennæ black, the first two joints with long black hairs. Front black; back of head with long black hairs. Thorax black, with yellow tomentum on shoulders and at sides; dorsum bearing dense black hairs; bristles at sides yellow; scutellum with a number of weak black marginal bristles. Abdomen black, shining, with yellow side stripes and pale yellow pubescence. Legs with femora red and black, or yellow and black, the anterior pair with basal two-thirds black, middle pair with basal third black, posterior pair with basal half black, remaining portions of all femora red or yellow; knees black; tibiæ varying in colour from light yellow to red; tarsi black; bristles of femora, tibiæ, and tarsi black, although a few yellow bristles may sometimes be present. Wings hyaline or tinged with brown; fourth posterior cell open, but contracted at the wing margin to about half its breadth; anal cell almost, but not quite, closed.

Variation. A female taken at Bellerive differs considerably from the type; the femora are entirely black, the bristles of the femora yellow, of the tibiæ and tarsi red, moustache pale yellow, and tomentum on thorax, and abdominal side-stripes, white. This specimen may possibly represent a distinct species, but I think that it is probably only a variety of *S. elongatus.*

S. elongatus is a common insect, and seems to be distributed over almost the whole of Australia. It may usually be met with settled on low vegetation. My dates range from January 1 to February 13.

Besides the foregoing, the two following species, *Dasypogon albonotatus*, *Macq.*, and *Dasypogon nigrinus*, *Macq.*, originally described from Tasmania, are stated by Miss Ricardo to be of doubtful position. *D. albonotatus* is described as having a long, slender, black abdomen, with white spots at sides of second to fifth segments; legs red, wings hyaline, a little yellowish at base and on fore border. Length, 16 mm. *D. nigrinus* is described as black, the fifth and sixth abdominal segments with testaceous segmentations; legs red and black; wings dark brown, with base hyaline. Length, 10 mm.

Subfamily **Laphrinæ.**

Of this subfamily eight genera have been recorded from the Australian region, but of these only one, *Laphria*, is known to occur in Tasmania.

33. LAPHRIA, Meig.

Large robust flies, usually shining blue-black or violet in colour. Moustache large and bushy, and not confined to the oral opening; legs strong and hairy; anterior tibiæ without a curved spine at apex; wings with first posterior cell open, fourth posterior cell closed at some distance above the wing margin, anal cell closed close to the wing margin.

Face with a distinct facial knob; moustache large and bushy. Antennæ rather longer than the head, first joint about three times the length of the second, third joint a little longer than the first and second together, and, in

Australian species, somewhat expanded, but differing in shape in each species. Thorax with dense pubescence, scutellum with long marginal hairs. Abdomen either long, narrow, and almost parallel-sided, or else broad, and ovate, with dense lateral pubescence, but with no distinct side bristles except in one mainland species (*L. clavata*, White.) Legs strong and very hairy; femora frequently thickened, and hind tibiæ conspicuously bowed. Wings either hyaline, brown, or grey, but without any distinct markings; first posterior cell open, fourth closed at some distance above wing margin, anal cell closed close to the wing margin.

The species belonging to this genus occur in the bush, where they may be found settled on logs or on the leaves of shrubs. Three species have been described from Tasmania, but of one of these (*L. niveifacies*) no specimen seems to be known.

Table of the Tasmanian Species of Laphria.

1. Colouring of abdomen and tibiæ blue-black or violet according to the angle of light. 2

2 Femora entirely violet. NIVEIFACIES, Macq.

Anterior and middle femora violet, posterior femora with basal half orange, apical half violet. TELECLES, Walk.

All femora with basal two-thirds orange, apical third violet. RUFIFEMORATA, Macq.

LAPHRIA TELECLES, Walk.

Abdomen narrow and almost parallel-sided; colouring of thorax, abdomen, and tibiæ shining blue-black or violet; anterior and middle femora, and apical half of posterior femora, blue-black or violet, basal half of posterior femora bright orange.

Length. (Tasmanian specimens.) Male, 14-18 mm.; female 12 mm.

Hab. Mangalore. (Probably generally distributed.) Also in Victoria, New South Wales, and Western Australia.

Male. Face covered with white hairs, except at the facial tubercle, which bears a dense, bushy moustache of long black hairs; beard white. Front black, with long black hairs bordering the eyes on either side. Antennæ black, the first two joints bearing long black hairs. Thorax shining blue-black or violet, with white or pale yellow shoulder-spots. Abdomen almost parallel-sided, blue-black or violet, with soft white or yellow side-pubescence, and white side-spots on the posterior angles of the second to fifth segments; genitalia large, black, and bearing long black hairs. Legs stout, with dense, long, black pubescence, the posterior femora swollen, and posterior tibiæ curved; anterior and middle femora, and apical half of posterior femora, blue-black or violet, basal half of posterior femora orange; all tibiæ blue-black or violet; tarsi black. Wings brown, but with the base more or less clear.

Female resembles the male very closely, but the wings are hyaline.

This species may be easily distinguished from *L. rufifemorata* by having only the posterior, instead of all the, femora, partly orange, and by the narrower abdomen.

L. telecles occurs not uncommonly in the bush, usually settled on dead wood near the ground, but sometimes on tree-trunks. My dates range from December 17 to March 1.

LAPHRIA RUFIFEMORATA, Macq.

Abdomen broad, flattened, and somewhat ovate; thorax dull black; abdomen, tibiæ, and apical third of all femora shining blue-black or violet, basal two-thirds of all femora orange.

Length. (Tasmanian specimens.) Female, 14 - 18 mm.

Hab. Bagdad Valley. (Probably generally distributed.) Also in New South Wales and Western Australia.

Female. Face black, covered at sides with white or yellow pubescence; facial tubercle black, bearing a bushy black moustache; beard white. Front black, with long black hairs bordering the eyes on either side. Antennæ black, the third joint expanded. Back of head with long black hairs jutting out on each side beyond the eyes. Thorax dull black, with two faint grey median stripes and yellowish-white shoulder-spots; scutellum with a fringe of remarkably long yellow hairs. Abdomen broad, flattened, and somewhat ovate, shining blue-black or violet, with pale yellow side-pubescence, and yellowish-white side-spots on posterior angles of second to fifth segments, that on the fifth segment being very small and inconspicuous. Legs stout and bearing very long pubescence, which is black on the black portions, orange on the orange portions, tibiæ curved, and without any distinct bristles; all femora with basal two-thirds bright orange, apical third blue-black or violet; tibiæ blue-black or violet; tarsi black. Wings with veins suffused broadly with brown.

All the specimens of *L. rufifemorata* that I have met with are females, so I am unable to give a description of the male. The females occur not uncommonly in the bush on high ground; they may be found settled on logs or on the leaves of shrubs. My dates range from January 18 to February 13.

Laphria niveifacies, Macq.

Thorax and abdomen violet-black, with blue, violet, and green reflections, legs violet, wings half brown.

Length. Female, 8 mm.

Hab. "Tasmania."

This species is quite unknown to me, and Miss Ricardo states that the type appears to be lost. Should any specimens come to hand they should be easily distinguished by the wholly violet legs.

Subfamily **Asilinæ.**

Of this subfamily five genera have been recorded from Tasmania, whilst another—*Dysmachus*—is now added.

Table of the Tasmanian Genera of Asilinæ

1. Style of antennæ feathered. OMMATIUS, Wied.
   Style of antennæ not feathered. 2
2. Wings with three submarginal cells. PROMACHUS, Loew.
   Wings with only two submarginal cells. 3
3. Lower branch of cubital fork ending in or above the wing-tip; ovipositor with a conspicuous circlet of spines. PROCTACANTHUS, Macq.
   Lower branch of cubital fork ending well below the wing-tip. 4
4. Thorax with long bristles from front to back. DYSMACHUS, Loew.
   Thorax with short bristles anteriorly, long posteriorly. 5
5. Ovipositor very long and laterally compressed. NEOITAMUS, Ost-Sack.
   Ovipositor short and conical. ASILUS, L.

34. OMMATIUS, Wied.

Antennæ feathered; face with a tubercle; costal margin of wings frequently inflated in the male; ovipositor small and inconspicuous and not laterally compressed.

Head distinctly broader than the thorax; face with a tubercle; moustache either scanty or bushy, frequently covering the greater part of the face. Antennæ with all three joints short, the third bearing a feathered aristiform style, which is quite twice the length of the three antennal joints together. Thorax almost bare anteriorly, but with long hairlike bristles posteriorly. Abdomen narrow and almost parallel-sided, the sides either bare or with short bristles; genitalia of male large and prominent; ovipositor small and not laterally compressed. Legs either long or of medium length, furnished with weak bristles. Wings with a normal venation; costal margin in the male either simple or inflated, and wings in both sexes sometimes rilled anteriorly; cubital fork long and embracing the wing-tip.

Some of the smaller species belonging to this genus are difficult to identify. In cases of doubt some assistance will be afforded by noticing the bristles of the scutellum, which in some species are only two in number, whilst in others they form a complete fringe.

Table of the Tasmanian Species of Ommatius.

1. Wings from the middle to the tip brown, the base and posterior margin hyaline. LEVIS, Sp. nov.
Wings entirely hyaline. 2
2. Legs largely reddish-yellow; wings without any inflation in either sex; bare species. DIMIDIATUS, Macq.
Legs black; wings slightly inflated in male; hairy species. PILOSUS, Sp. nov.

OMMATIUS DIMIDIATUS, Macq.

Some doubt attaches to the identification of this species. Miss Ricardo states that the type appears to be lost, so our only means of identification is Macquart's description. The type, a female, was from Tasmania. In Tasmania I have not met with any specimen agreeing with Macquart's description, but from New South Wales, Dr. Ferguson has kindly sent me four specimens for examination which agree with the description fairly well. I therefore propose to describe these specimens here, under Macquart's name of *dimidiatus*.

Abdomen and thorax black, with grey or brown tomentum, and whitish shoulder-spots; femora and tibiæ reddish-yellow, the former with black stripes or spots above, which vary greatly in extent in different specimens; wings entirely hyaline, and without any sign of inflation in either sex.

Length. Male, 9 mm.; female, 7 mm.

Hab. Described from Tasmania, but at present only known to occur in New South Wales.

Male. Face pale brown. Moustache scanty, consisting of snow-white hairs, with about six isolated black hairs above; beard white. Antennæ black. Front brown. Thorax black, with brown tomentum and whitish shoulder-spots; anterior half bare, posterior half with a few black bristles; scutellum almost bare, but with two very weak marginal black bristles. Abdomen black, with grey tomentum, almost bare, but with short white side-bristles on posterior margins of each segment; genitalia orange or black. Legs with femora reddish-yellow, with a black stripe above, that on the posterior pair sometimes reduced to an elongated spot, but the shape and extent of these black markings subject to great variation; tibiæ reddish-yellow, with apex black; tarsi with first joint yellow, remaining joints black; the femora are almost bare, but have weak white bristles below, and one or two black ones near the apex above; tibiæ with a few scattered black, and one or two white, bristles. Wings entirely hyaline, rilled, but without any sign of inflation.

Female resembles the male very closely, but is rather more robust in shape, and the legs may be a little darker.

This species is readily recognised by the colouring of the legs, which, even in dark specimens, have at least the lower half of the femora, and a large part of the tibiæ, reddish yellow; by its small size, and hyaline wings without any sign of inflation in either sex. As stated above, its occurrence in Tasmania is still open to some doubt.

OMMATIUS PILOSUS, Sp. nov.

A very hairy species. Thorax and abdomen black, the latter with grey segmentations; legs black with reddish knees; anterior and middle tibiæ with long white hairs, the middle tibiæ also bearing extremely long black hairs, and hair-like bristles, on the inner side; wings hyaline, slightly inflated in the male.

Length. Male, 11 mm.; female, 10.5 mm.

Hab. Mangalore. (Also in South Australia.)

Male. Face black, covered with grey tomentum; moustache bushy, black above, yellow below. Front black, with yellowish tomentum. Antennæ black. Thorax black, indistinctly striped, with grey tomentum on shoulders and at sides, the whole bearing stiff black hairs, which are short anteriorly, long posteriorly; scutellum black, fringed with numerous very long, weak, white, upturned bristles. Abdomen black, with grey segmentations, the sides with dense white pubescence. Legs black, with the knees reddish, both femora and tibiæ sometimes appearing a little reddish beneath; anterior coxæ with a pencil of stiff black bristles; all femora with abundant long white pubescence, the posterior pair with a few black bristles below; anterior and middle tibiæ with long white pubescence, the middle tibiæ also bearing extremely long black hairs, and hair-like bristles, on the inner side; posterior tibiæ with black bristles; tarsi black, with black bristles, which are particularly long on the anterior and middle pairs; the front tarsi also bear abundant white pubescence. Wings entirely hyaline, rilled, and with the costal margin slightly inflated.

Female resembles the male, but differs in having the moustache black and white, instead of black and yellow, the reddish colour of the knees slightly extended on the hind tibiæ, and wings with costal margin not inflated.

This species may be distinguished from *O. dimidiatus* by its black, instead of reddish-yellow, legs, and by its more hairy body and legs; from *O. levis* by its hyaline wings. Of the various described mainland species, the only one with which it could be confused is *O. queenslandi*, *Ricardo*, from which it is distinguished by the slightly inflated wings in the male, and by the wholly black tibiæ. The other mainland species are all very much larger insects.

O. pilosus occurs sparingly in the bush, where it may be found settled on the dead twigs of small trees. Time of occurrence, January. I have also taken a specimen at Aldgate, South Australia.

OMMATIUS LEVIS, Sp. nov.

Thorax, abdomen, and legs black; wings with basal half hyaline, apical half brown with hyaline hind-margin, and not inflated in either sex.

Length. Male, 11 mm.

Hab. Launceston.

Male. Face black; moustache of long white hairs, with a few black ones above, two of these being extremely long. Front black. Antennæ brownish-black. Thorax black, with a little grey tomentum on shoulders and at sides, the whole covered sparingly with black bristles, which are very short anteriorly, long posteriorly; scutellum black, fringed with numerous weak white bristles. Abdomen black, with white hairs at sides. Legs black, the tibiæ tinged with rusty brown; femora with white pubescence; tibiæ with white and black bristles; tarsi with black bristles. Wings with basal half hyaline, apical half brown with hyaline hind-margin; the wings are rilled but not inflated.

This species is distinguished from all the other Australian species of *Ommatius* by having the wings partly brown and partly hyaline. Only a single specimen is at present known; it was taken by Mr. Hardy at Launceston on January 25, 1914.

35. PROMACHUS, Loew.

(*Bactria*, Meig. *Telejoneura*, Rond. *Trupanea*, Macq.)

Abdomen conical, somewhat hairy, and longer than the wings; legs rather strong but not stout; claws of tarsi pointed; ovipositor without a circlet of spines; wings with three submarginal cells, the veinlet dividing the second and third submarginal cells situated directly above the second posterior cell; first posterior cell closed or open; fourth posterior and anal cells closed.

The only other Australian genus having three submarginal cells is *Philodicus, Walk.*, in which the veinlet dividing the second submarginal (or cubital fork) cell and the third submarginal cell is situated directly above the discal cell, so that whereas in *Promachus* the second submarginal cell is much shorter than the third, in *Philodicus* the reverse of this is the case.

One species of *Promachus* was described by Macquart from Tasmania, but no specimen seems now to be known.

PROMACHUS TASMANENSIS, Macq.

This species was described as ashy-grey; abdomen with dorsal black spots; moustache yellow; antennæ and legs black; tibiæ testaceous.

Length. Male, 20 mm.

Hab. "Tasmania."

36. PROCTACANTHUS, Macq.

(*Acanthodelphia, Bigot.*)

Wings with the lower branch of the cubital fork curving upwards and ending in or above the wing-tip; upper branch often with a recurrent bend or rudimentary veinlet; first posterior cell wide open; fourth posterior and anal cells closed. Abdomen conical and much longer than the wings; ovipositor with a conspicuous circlet of spines.

Of this genus two species have been described from the Australian region; one of these, *P. durvillei, Macq.*, is given by Macquart as from New South Wales, but Miss Ricardo states that the type is from Tasmania.

PROCTACANTHUS DURVILLEI, Macq.

This species is described as having the thorax blackish, with yellow pubescence and three black stripes; abdomen shining black with blue reflections; femora black, tibiæ reddish, with reddish bristles.

Length. Female, 18 mm.

37. DYSMACHUS, Lw.

Thorax bearing long bristles from front to back; moustache large and bushy; abdomen with lateral bristles.

Face somewhat projecting; moustache large and bushy. Antennæ with the third joint usually elliptical, but in the Australian species elongated and almost linear. Thorax bearing long dense bristles from front to back; abdomen with lateral bristles; genitalia of male large; ovipositor of the female with the end lamellæ wedged-in. Legs stout, hairy and bristly, the bristles on the tibiæ unusually long. Wings with the normal venation of Asilus.

Dysmachus is represented in the Australian region by a single species, *D. rudis*, *Wall.*, which does not seem quite typical of the genus.

DYSMACHUS RUDIS, Walk.

Thorax grey-brown, with two darker centre stripes; abdomen grey-brown, with hind-margins of segments white; legs black, with base of tibiæ and base of first tarsal joint reddish; wings brownish or hyaline.

Length. Male and female, 12 mm.

Hab. Mangalore. (Probably generally distributed.)

Male. Face grey; moustache large and bushy, reaching nearly to the antennæ, black, with a few white hairs below. Antennæ black, the first joint twice the length of the second, the third longer than the first two joints together, and bearing a thin style. Thorax grey-brown, with two darker centre-stripes, and suffused interrupted side-stripes, the whole bearing long black bristles, which descend mane-like to the front margin; scutellum with two long black terminal bristles. Abdomen grey-brown, with hind-margins of segments white, and black lateral bristles; genitalia black, large and prominent. Legs black, the base of tibiæ and of first tarsal joint reddish; all joints bearing black bristles, those on the tibiæ being especially long. Wings usually brownish, but sometimes hyaline.

Female resembles the male very closely, but the abdomen is produced into a laterally-flattened ovipositor, resembling that of *Neoitamus*, though shorter than in most species of that genus.

D. rudis is a common species in the early springtime. It occurs settled on stones and in similar situations. My dates range from September 13 to November 9. It also occurs in Victoria and New South Wales.

38. NEOITAMUS, Ost-Sack.

(*Itamus, Loew.*)

Ovipositor very long and laterally compressed; bristly hairs of thorax short anteriorly, long posteriorly.

Head somewhat projecting; moustache bushy, but not nearly reaching to the antennæ. Antennæ slender, a little longer than the head, the first joint two or three times the length of the second, the third about equal to, or a little longer than, the first two together, cylindrical, and provided with a thin style. Thorax with short bristles anteriorly, long posteriorly; scutellum with two or four marginal bristles. Abdomen long and narrow, with or without weak side-bristles; genitalia of male large, and differing in shape in almost every species; ovipositor of female very long and laterally compressed, and apparently including the sixth and seventh abdominal segments. Legs of medium length, all joints bearing bristles. (In the Palæarctic species of this genus the tibiæ are extensively bright orange, but this is rarely the case with the Australian species.) Wings with the normal venation of *Asilus*, frequently rilled, but never inflated.

Neoitamus is one of the most difficult of the Australian genera. It contains a large number of closely-allied species, which can only be distinguished with difficulty, the difficulty being increased by the fact that the same species is liable to vary considerably according to the part of Australia in which it occurs. Of the seven known Tasmanian species two appear to be peculiar to the island, whilst the other five occur also on the Australian mainland.

Table of the Tasmanian Species of Neoitamus.

1. Femora entirely black. 2
   Femora black above, red, brown, or yellow beneath. (Small brownish species.) 6
2. Tibiæ entirely black; abdominal segmentations yellow. FLAVICINCTUS, White.
   Tibiæ always partly red, brown, or yellow. 3
3. Scutellum with four marginal bristles, which are usually yellow, but sometimes black; thorax with one broad median stripe; large species. HYALIPENNIS, Ricardo.

Scutellum with only two marginal bristles. 4

4. Wings suffused with brown at apex of second basal cell, at anterior cross-vein, and at base of cubital fork; bristles of abdomen black; moustache of female almost entirely white. CALIGINOSUS, White.

Wings hyaline or evenly shaded; moustache of female largely black. 5

5. Second posterior cell of wings broad and not contracted; front tibiæ largely red; bristles of abdomen white; ovipositor very long; summer species. VULGATUS, White.

Second posterior cell of wings conspicuously contracted at a short distance from the wing-margin; front tibiæ blackish; abdomen practically bare; ovipositor unusually short; late autumn species. ABDITUS, Sp. nov.

6. Thorax with one broad median stripe; posterior thoracic bristles white. GRAMINIS, White.

Thorax with two median stripes; all thoracic bristles black. BRUNNEUS, White.

Besides the above species, *N. fraternus*, *Macq.* has been described from Tasmania; this species I am unable to distinguish unless it is the same as *N. hyalipennis*, *Ricardo*, which in Tasmanian specimens frequently has the wings shaded with brown, and like *N. fraternus* has four scutellar bristles.

NEOITAMUS FLAVICINCTUS, White.

Thorax black with yellow stripes; abdomen black, with segmentations yellow, more distinct in female than in the male; legs jet-black; posterior tibiæ and first joint of posterior tarsi with short, thick, ruddy pubescence on their inner sides; wings tinged with brown, darkest towards the tips.

Length. Male, 13.5 mm.; female (including ovipositor), 15 mm.

Hab. Bagdad Valley.

Male. Face covered with golden tomentum. Front black. Moustache large and bushy, black. Antennæ black, the first and second joints with black bristles, the third joint scarcely longer than the first two together. Thorax with two black median stripes, divided by a thin yellow line, and bordered outwardly with yellow; sides of dorsum broadly black, bordered with yellow below; scutellum yellowish, with numerous long marginal black and yellow hairs. Abdomen black, with segmentations yellow, and bearing yellow pubescence; genitalia large and prominent with black pubescence. Legs jet-black, with abundant black bristles and pubescence; posterior tibiæ and first joint of posterior tarsi with, in addition, short ruddy pubescence, which is especially conspicuous on the inner sides of the tibiæ. Wings brownish, darkest towards the tips.

Female resembles the male, but the abdomen is broader, and the yellow segmentations usually more distinct; ovipositor long and narrow.

N. flavicinctus is very distinct from any of the other Australian species; it can be recognised at once by its black and yellow colouring, and black legs. It is a scarce mountain species, occurring during the month of January.

NEOITAMUS HYALIPENNIS, Ricardo.

Thorax black and grey, with a broad black centre stripe, which is bordered with yellow-brown on each side; scutellum with four marginal bristles, which are usually yellow but sometimes black; abdomen black with hind-margins of segments pale grey; femora black; tibiæ orange-brown with apex black; wings hyaline or brownish.

Length. Male, 17 mm.; female, 23 mm.

Hab. Bagdad Valley. (Probably generally distributed).

Male. Face grey, with brown tomentum in middle; moustache bushy, black above, white below. Antennæ black, the first joint twice the length of the second, the third about equal in length to the first and second together. Thorax grey, with a broad black centre-stripe, bordered by yellow-brown, and broad black side-stripes; scutellum grey, with four marginal bristles, which are usually yellow, but sometimes black. Abdomen robust, black, with hind-margins of segments pale grey; sides of abdomen with abundant white pubescence and short white bristles. Legs with femora black; tibiæ orange-brown, with apex black; tarsi black, the first joint brown at the base; bristles of legs entirely black. Wings either hyaline or brown.

Female resembles the male, but the abdomen is produced into a long ovipositor, and is generally less hairy; the abdominal bristles are shorter, mostly white, but with also a few black ones.

N. hyalipennis is the largest known Australian species of the genus. It may be recognised readily by its large size, four scutellar bristles, and single broad, black, median, thoracic stripe. It is a comman species, and may be met with settled on the ground, on fences, and on tree-trunks. My dates range from November 9 to February 13. It occurs also in Victoria.

NEOITAMUS CALIGINOSUS, White.

Thorax black and brown; scutellum with two long terminal bristles, either both black or one black and one white; abdomen black, with hind-margins of segments white; femora black; tibiæ red with apex black; wings hyaline, suffused with brown at apex of second basal cell, at anterior cross-vein, and at base of cubital fork.

Length. Male, 9 mm.; female, 10 - 14 mm.

Hab. Bagdad Valley; Bellerive.

Female. Face covered with grey tomentum; moustache white, with a few black hairs intermixed. Front black. Antennæ black, the first two joints with long black hairs. Thorax with two median, narrowly-divided, brownish-black stripes, and two broad lateral stripes; sides of thorax light brown; scutellum brownish-grey, with two long terminal bristles, of which one is usually white and one black, but sometimes both are black. Abdomen black, with hind margins of segments white; sides of abdomen with black bristles. Legs with femora black; tibiæ red with apex black, the hind pair darker than the others; first joint of tarsi and base of other joints red, remainder black; bristles of legs mostly black, but with usually a few white ones. Wings hyaline, with the apex of second basal cell, the anterior cross-vein, and base of the cubital fork (also sometimes the base of second posterior cell) suffused with brown. (To the naked eye this merely gives the impression of the veins being darkened in the areas specified, but examination with a low-power lens shows the presence of suffused portions of the wings). Second posterior cell short and broad, and not contracted.

The female shows the specific characters most clearly. The male is usually much smaller, the beard yellowish-white, with a few black hairs below, and the scutellar bristles are both black.

Tasmanian specimens of this species may be identified without much difficulty by the irregularly-suffused wings, the black abdominal bristles, and the almost wholly white moustache of the female. On the mainland of Australia, however, besides typical specimens, others occur having the wings quite hyaline, which renders identification more difficult.

N. caliginosus is a fairly common species; it may be met with settled on the ground or on tree-trunks. My dates range from October 20 to February 13. It also occurs commonly in New South Wales.

NEOITAMUS VULGATUS, White (Fig. 28).

Thorax black and grey or black and yellowish; scutellum with two long, black, terminal bristles; abdomen black with hind-margins of segments indistinctly grey; femora black; tibiæ with basal half, or two-thirds, dark red; wings with the second posterior cell broad and not contracted.

Length. Male, 14 mm.; female (including ovipositor), 15.5 mm.

Hab. Bagdad Valley. (Probably generally distributed.)

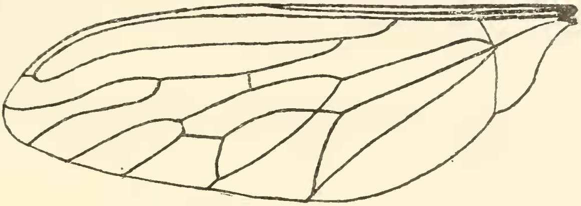

Fig. 28. Wing of *Neoitamus vulgatus.*

Male. Face covered with yellowish-grey tomentum. Moustache black above, white beneath. Front black, with a little light tomentum. Thorax with two black median stripes, divided by a yellowish line, bordered outwardly with yellowish-grey, and with two broad lateral black stripes, which are broken up by light cross-lines into four distinct patches, in this respect differing from *N. hyalipennis*, which has the side-stripes almost entire; bristles black; scutellum grey, with two long, black, terminal bristles. Abdomen black, with hind-margins of segments indistinctly grey. Legs with femora black; anterior and middle tibiæ with basal two-thirds dark red, apical third black; posterior tibiæ with basal half dark red, apical half black; anterior and middle tarsi with first joint two-thirds red, posterior tarsi with first joint only red at base; remaining tarsal joints black, with base of each reddish; bristles of legs mostly black, but with also a few white ones. Wings tinged with brown, the cubital fork narrow and contracted in the middle, the second posterior cell broad and not contracted.

Female, except for the broader abdomen, and long, laterally compressed ovipositor, resembles the male in all respects.

Variation. The above description refers to Tasmanian specimens, but from New South Wales I have received specimens in which the thorax bears one broad, instead of two narrow, median stripes. Such specimens can be distinguished from *N. hyalipennis* by the two scutellar bristles.

N. vulgatus resembles *N. hyalipennis*, *N. caliginosus*, and *N. abditus*. From *N. hyalipennis* it is distinguished by the scutellar bristles being only two instead of four in number, its smaller size, and by the coloured portions of the tibiæ being dark red instead of pale yellowish-red; from *N. caliginosus* by the evenly suffused wings, and the white instead of black abdominal bristles; from *N. abditus* by the different venation, the second posterior cell being broad and not contracted, and the cubital fork distinctly contracted in the middle and spread out as it reaches the wing-margin, also by the lighter colouring of the anterior tibiæ.

N. vulgatus occurs commonly in the bush, settled on logs or on fallen branches. My dates range from November 1 to January 18.

NEOITAMUS ABDITUS, Sp. nov. (Fig. 29).

Thorax grey or brown, with two dark brown centre-stripes; abdomen black, with hind-margins of segments grey; femora black; anterior tibiæ blackish, posterior tibiæ light yellow-brown; wings with the second posterior cell conspicuously contracted at a short distance from the wing-margin; cubital fork narrow and barely contracted in middle.

Length. Female, 11 - 12 mm.

Hab. Bagdad Valley.

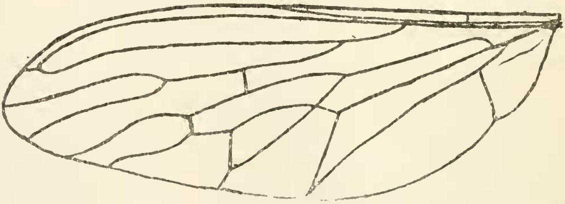

Fig. 29. Wing of *Neoitamus abditus.*

Female. Face grey-brown; moustache black, with a few white hairs below. Antennæ black. Thorax grey or grey-brown, with two very closely approximated dark brown median stripes, and indistinct side-stripes; bristles black; scutellum with two or four black marginal bristles. Abdomen black, with hind-margins of segments white, almost bare, but with a little white pubescence; ovipositor rather short. Legs with femora black; anterior tibiæ blackish; middle tibiæ yellow-brown with apex black; posterior tibiæ yellow-brown; tarsi yellow-brown, with tips of joints black; bristles on femora, tibiæ, and tarsi entirely black. Wings hyaline, the cubital fork long and narrow, and barely contracted in the middle; second posterior cell conspicuously contracted at a short distance from the wing-margin.

This species bears a close resemblance to both *N. caliginosus* and *N. vulgatus*, but can be distinguished by the venation, the second posterior cell being long and conspicuously contracted at a short distance from the wing-margin, instead of being short and broad and not contracted, and, on the other hand, by the cubital fork being longer and narrower and less contracted, also by the darker colouring of the anterior tibiæ.

N. abditus is a late autumn species. It may be met with not uncommonly settled on the ground or on fencing posts. My dates range from March 1 to April 26.

NEOITAMUS GRAMINIS, White.

Thorax yellow-brown, with one broad dorsal and two lateral brownish-black stripes; abdomen brownish-black, with conspicuous light yellow-brown segmentations; femora black above, red beneath; tibiæ light yellow-brown, with apex black; moustache entirely yellow; posterior thoracic bristles white.

Length. Male, 11.5 mm.; female, 12.5 mm.

Hab. Bagdad Valley.

Male. Face and front covered with pale yellow tomentum; moustache pale yellow, scanty, without any black bristles. Thorax yellow-brown, with a broad median and two lateral brownish-black stripes; sides bright yellow-brown; posterior bristles white; scutellum with two weak yellow terminal bristles. Abdomen brownish-black, with hind-margins of segments light yellow-brown, and bearing yellow lateral bristles. Legs with the femora broadly black above, red beneath; anterior and middle tibiæ red, with black bristles, posterior tibiæ yellow-brown with white bristles; apex of tibiæ and tarsi black. Wings tinged with brown.

Female resembles the male, but the legs are lighter, the tibiæ being all pale yellow-brown, with apex black, and the wings are hyaline.

Variation. Specimens from New South Wales, which Dr. Ferguson has kindly sent me, have the femora entirely black, except the extreme base, which is light reddish-brown, and the tibiæ are a light yellow-brown in both sexes; the thoracic bristles may be almost entirely white, or with only a few white ones posteriorly; and the abdomen is blacker than in Tasmanian specimens.

This species can be easily distinguished from *N. brunneus*, the only Tasmanian species that it resembles, by the white thoracic bristles, and by the thorax having one broad instead of two narrow median stripes.

N. graminis occurs sparingly on high ground, where it may be found resting on the stems of long grass, during the months of January and February.

NEOITAMUS BRUNNEUS, White.

A small brown species. Thorax light brown, with two dark median stripes, and black bristles; abdomen brown, with hind-margins of segments indistinctly paler; femora black above, light brown beneath; tibiæ light brown; moustache pale yellow, with a few black hairs above.

Length. Male, 12 mm.; female, 11 mm.

Hab. Mangalore. (Probably generally distributed.)

Male. Face covered with yellowish-white tomentum; moustache pale yellow, with a few black hairs above. Antennæ with the first joint red, remainder black. Thorax light brown, with two dark brown median stripes, and three brown suffused spots on either side; bristles entirely black; scutellum grey-brown, with two long, marginal, black bristles. Abdomen brown, with hind-margins of segments indistinctly paler; dorsum of abdomen with black, and sides with white, short stiff pubescence. Legs light brown, with upper surface of femora black, and apex of tibiæ, and last four tarsal joints, darkened; posterior femora with one long and about three short black bristles; all tibiæ with white and black bristles. Wings very slightly tinged with brown; anterior veins brown, posterior veins black.

Female resembles the male very closely, but the thorax is somewhat lighter, and less distinctly marked.

This species bears some resemblance to *N. graminis*, but may be easily distinguished by the thoracic bristles being entirely black, by its lighter colouring, moustache with black hairs above, instead of being entirely yellow, and thorax with two instead of one median stripe.

N. brunneus occurs commonly settled on roads and on open hillsides. My dates range from December 19 to January 25. It also occurs in New South Wales.

39. ASILUS, L.

Large, brightly-coloured flies; abdomen long and slender; ovipositor conical, and not laterally compressed.

Face somewhat projecting; moustache fairly large, but not nearly reaching to the antennæ. Antennæ rather longer than the head, the first joint two or three times the length of the second, the third about equal to, or sometimes distinctly shorter than, the first two joints together, and provided with a long slender style, which is about equal in length to the third joint. Thorax with short pubescence anteriorly, long bristles posteriorly. Abdomen long and slender, as a rule nearly bare, but occasionally hairy; weak lateral bristles sometimes present; genitalia of male large and globose, and broader than the preceding abdominal segment; ovipositor of female conical and not laterally compressed. Legs rather long, all joints bearing bristles. Wings large, the costal portion frequently rilled; cubital fork large and embracing the wing-tip, second posterior cell usually encroaching on the first posterior cell, fourth posterior and anal cells closed; wings usually tinted with brown or black, but never banded.

Of this genus three species—*A. alcetus*, *A. sydneyensis*, and *A. discutiens*—have been recorded from Tasmania, but the occurrence of the two last, which are New South Wales species, requires confirmation.

Table of the Tasmanian Species of Asilus (including the doubtful species).

1. Abdomen black, clothed with long yellow pubescence. DISCUTIENS, Walk.
   Abdomen bare. 2
2. Abdomen bright fulvous; slender species. SYDNEYENSIS, Macq.
   Abdomen grey; robust species. ALCETUS, Walk.

ASILUS ALCETUS, Walk.

Thorax black, with two median stripes, and sides bright yellow; abdomen yellowish-grey, robust, with white and black side-bristles; femora and tibiæ red; knees and tarsi black.

Length. Male, 17 mm.; female, 19 mm.

Hab. Mangalore.

Male. Face yellow; moustache yellow, with a few short black hairs above; back of head with tufts of very stiff, black, post-ocular bristles. Antennæ black, the third joint hardly longer than the first. Thorax deep black, with two bright yellow median stripes, and sides also bright yellow; thoracic bristles very long, black. Abdomen unusually robust, yellowish-grey, the sides of segments with tufts of yellow bristles; genitalia black, large and globular. Legs with femora and tibiæ red, knees and tarsi black, all joints bearing black bristles. Wings tinged with brown.

Female resembles the male; the side-bristles of the abdomen are yellow on the first to fifth segments, black on the sixth to eighth segments; ovipositor very small, and almost concealed beneath the last abdominal segment.

The above descriptions are those of the ordinary Tasmanian forms, but do not quite agree with Walker's type in the British Museum, which has the sides of abdomen with strong black bristles; I consider, however, that the type specimen is merely an unusual variety of the same species.

A. alcetus is easily recognised by its short robust shape, bright yellow thoracic stripes, dull grey abdomen, and yellow abdominal bristles. It may be found settled on roads, or on the ground in open grassy country, but cannot be described as common. My dates range from December 26 to January 25.

ASILUS DISCUTIENS, Walk.

Moustache yellow, with some black hairs above and below; thorax and abdomen black, the latter clothed with long yellow pubescence, which is not confined to the three basal segments (thus differing from *A. inglorius, Mackay*); femora and tibiæ red, with knees, tarsi, and bristles black.

Length. Female, 32 mm.

Hab. New South Wales.

The occurrence of this species in Tasmania requires confirmation.

ASILUS SYDNEYENSIS, Macq.

Moustache white; antennæ black; thorax black, with two rather obscure median stripes and sides yellow; abdomen bright fulvous, with base and apex black; femora and tibiæ bright orange-red, with knees, tarsi, and bristles black.

Length. Male, 21 - 26 mm.; female, 22 - 24 mm.

Hab. New South Wales.

The occurrence of this species in Tasmania requires confirmation.

Family VIII. BOMBYLIDÆ

Moderate-sized or rather large sun-loving flies; thoracic bristles usually present, but these are often concealed under dense furry pubescence; proboscis frequently much elongated; legs thin and slender and almost without bristles; wings with only three or four posterior cells.

Proboscis usually very long, though sometimes short. Vertex not at all sunk between the eyes, which are bare, usually touching or closely approximated in the male, and widely separated in the female, but occasionally touching in both sexes. Antennæ porrect, the third joint never annulated, but usually provided with a short style or a circlet of bristly hairs. Thorax often without any conspicuous bristles, but presutural, supraalar, and postalar bristles may be present; both thorax and abdomen often clothed with dense furry pubescence, or, rarely, with distinct scales. Legs thin and slender, either bare or with small weak bristles. Wings with only three or four posterior cells; submarginal cells varying from one to five in number; discal cell occasionally wanting; anal cell long, either closed or open; the radial and upper branch of the cubital vein frequently curved upwards, but in a few genera the cubital vein is unforked.

This family contains the well known bee-flies (*Bombylius* and *Systœchus*), which may often be seen hovering over flowers in the spring time. Species of *Geron* occur settled on flowers without hovering, those of *Argyramœba* frequent charred logs in the bush, those of *Anthrax* and *Comptosia* occur settled on the ground in hot sunny places.

Some difference of opinion exists as to the division of the *Bombylidæ* into subfamilies. Personally, so far as the Australian species are concerned, I recognise four subfamilies, the *Bombylinæ*, *Lomatinæ*, *Systropinæ*, and *Anthracinæ*, the limits of all of which are well marked, but if it is desired to subdivide the family further, then the genus *Cyrtomorpha* would be placed in the *Platypyginæ*, and the genus *Marmasoma* in the *Toxophorinæ*. Three of the four Australian subfamilies are represented in Tasmania.

Table of the Tasmanian Subfamilies of Bombylidæ.

1. The bifurcation of the radial and cubital veins takes place at a right angle, almost opposite the median cross-vein. Anthracinæ.

The bifurcation of the radial and cubital veins takes place at an acute angle, at a considerable distance from the anterior cross-vein. 2

2 Abdomen rounded or conical, usually with dense furry pubescence; proboscis long (except in those species with a simple cubital vein); radial vein never with a strong loop before its end. **Bombylinæ.**

Abdomen flattened, bare, and usually parallel-sided; radial vein with a strong loop before its end **Lomatinæ.**

Subfamily **Bombylinæ.**

This subfamily is the largest and most typical of the *Bombylidæ.* It contains the well-known "Bee-Flies," which may often be seen hovering over flowers in the spring and early summer. Typically the abdomen is very broad, and covered with long furry pubescence, but in a few genera it is narrow and conical, and almost bare; it is, however, never flattened as in the *Lomatinæ* and *Anthracinæ.* The cubital vein is normally forked, but there is a peculiar group, which should perhaps form a separate subfamily, in which the vein is unforked, the head situated low down beneath a very gibbous thorax, as in the *Cyrtidæ,* and both body and legs are devoid of pubescence. This curious group is represented in the Australian region by a single Tasmanian genus, *Cyrtomorpha,* now recorded for the first time. The correct position of the new genus *Marmasoma* is also open to doubt, owing to the scaly vestiture, and the long bristles of the body and legs. If the subfamily *Torophorinæ* is recognised, it should be placed there, but until the Australian *Bombylidæ* are properly worked out, and the affinities of the different genera ascertained, I have preferred to place it in the *Bombylinæ*

Table of the Tasmanian Genera of Bombylinæ.

1. Discal cell wanting; cubital vein unforked, extremely humpbacked, small bare flies. CYRTOMORPHA, Gen. nov.

Discal cell present; cubital vein forked. 2

2. Abdomen narrow, conical and not with dense furry pubescence. 3

Abdomen broad, rounded, and bearing dense furry pubescence. 4

3. Wings with only three posterior cells. GERON, Meig.

Wings with four posterior cells; thorax and legs bristly. MARMASOMA, Gen. nov.

4. Wings with first posterior cell open; first and second basal cells of equal length. SISYROMYIA, Gen. nov.
First posterior cell closed. 5

5. Wings with first basal cell much longer than the second. BOMBYLIUS, L.
First and second basal cells of equal length. SYSTŒCHUS, Lw.

40. CYRTOMORPHA, Gen. nov. (Fig. 30).

Small, bare, extremely humpbacked flies, resembling *Cyrtidæ.* Proboscis short; wings with the discal cell wanting, and the cubital vein unforked.

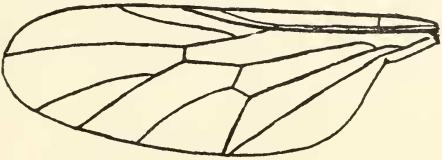

Fig. 30. Wing of *Cyrtomorpha paganica.*

Head small, situated low down below the greatly arched thorax. Proboscis short, about half the length of the head, projecting forwards. Antennæ a little shorter than the head, the first and second joints apparently anastomosed, and about half the length of the third, which is a slender bulb-shape, tapering towards the apex, and provided with a bare, thin style, which is but little shorter than the third joint; the antennæ thus appear to consist of only two joints and a long style. Thorax extremely gibbous, bearing short, dense, upright pubescence, but without any sign of bristles. Abdomen broad, short, and rounded, bearing short depressed pubescence. Legs slender, bare, and without any sign of bristles. Wings with the discal cell wanting, and the cubital vein unforked; radial vein unusually short; discal vein forked; first basal cell considerably longer than the second basal cell; anal cell rather broad, open.

This genus seems to be most nearly allied to the Mediterranean and Western Asiatic genus *Cyrtosia*, but is distinguished by the short instead of long proboscis, the shorter radial vein, and differently placed discal vein. From all the other known Australian genera of the *Bombylidæ* it may be distinguished by the unforked cubital vein and by the absence of the discal cell. This genus is proposed for a scarce species, which is only known to occur in Tasmania.

CYRTOMORPHA PAGANICA, Sp. nov. (Fig. 30).

Antennæ, front, and thorax black, the thorax bearing dense, pale yellow pubescence; abdomen black, with hind-margins of all segments dark yellow; legs bright yellow, the tarsi brownish at the tips; wings hyaline.

Length, 4.5 mm.

Hab. Mangalore.

? *Male.* Face orange-brown; proboscis black. Front brownish-black, with a long median furrow. Eyes bare, separated, but not very widely. Antennæ black, of the form described under the generic characters. Thorax black, covered with dense, upright, pale yellow pubescence, but without any sign of bristles. Abdomen black, with hind-margins of all segments dark yellow, the yellow margins being broadest on the apical segments, the whole bearing short depressed yellowish-white pubescence on dorsum, and fairly long, similarly-coloured pubescence on sides. Legs with femora yellow, brownish at the base, tibiæ clear yellow, tarsi yellow with the tips brownish, all the joints being absolutely without bristles. Wings hyaline, veins yellow. Halteres pale yellow.

This species bears more resemblance to the *Cyrtidæ* than to the *Bombylidæ*, but may be distinguished by the venation, and by the absence of the large squamæ that are characteristic of the former family.

C. paganica is at present known from only a single specimen, which was taken in flight by myself on January 31, 1913.

41. GERON, Meig. (Fig. 31).

Humpbacked flies, with a narrow, conical abdomen, both thorax and abdomen bearing dense pubescence; wings with three posterior cells only.

Head set low down in front of the greatly arched thorax. Proboscis long, about three times the length of head. Palpi very short. Eyes joined in male, separated in female. Antennæ a little longer than the head, the first joint thin, more than twice the length of the second, the third about the length of the first and second together, evenly pointed. Thorax much arched, and bearing long pubescence. Abdomen narrow and conical, bearing long pubescence. Legs long and slender, the tibiæ with a few very short bristles. Wings with three posterior cells, which are all open; anal cell closed; cubital vein with a large fork, which embraces the wing-tip.

This genus may be easily distinguished by the small number of posterior cells. In Tasmania two species are known to occur.

Table of the Tasmanian Species of Geron.

1. Pubescence yellow; wings partly tinged with brown; vein closing the discal cell waved. DISPAR, Macq.
2. Pubescence white; wings absolutely clear; vein closing the discal cell straight. HILARIS, Sp. nov.

GERON DISPAR, Macq.

Syn. *Geron cothurnatus*, Bigot.

Thorax and abdomen velvet-black, with long yellow pubescence; legs entirely black (♂) or black with posterior femora pale brownish-yellow (♀); wings strongly tinged with brown along the costa; the vein closing outwardly the discal cell waved.

Length. Male, 6 - 6.5 mm; female, 4 - 6.5 mm.

Hab. Bagdad Valley, Hobart, South Bridgewater. (Probably generally distributed.) Also in New South Wales and Victoria.

Male. Eyes joined from the vertex to the antennæ, flattened in front, and somewhat sunk at the line of junction. Proboscis and antennæ black, the first antennal joint more than three times the length of the second, and bearing extremely long, dense, black hairs; second joint extremely short, the third about equal in length to the first two together. Thorax much arched, velvet-black, with long, dense, yellow, upstanding pubescence, and very short, golden, depressed pubescence. Abdomen similarly coloured, and with similar pubescence to that of the thorax. Legs entirely black. Wings tinged with brown along the costal margin, the amount of brown varying in different specimens; remainder of wing hyaline; the veinlet closing outwardly the discal cell is conspicuously waved; halteres with stem whitish, knob black.

Female resembles the male, but the eyes are well separated, and the posterior femora are pale brownish-yellow, with only the apex black; the middle femora may be either yellow or black, the anterior femora always black. The front is velvet-black, and the base of antennæ surrounded with silvery pubescence.

This species varies very greatly in size, but may be easily distinguished by the yellow and golden pubescence, the brown-tinged wings, and the waved veinlet closing the discal cell.

G. cothurnatus, Bigot, would appear from Bigot's description to be merely a pale variety of this species.

G. dispar is common and generally distributed; it frequents flowers in the bush. My dates range from November 20 to March 24.

GERON HILARIS, Sp. nov. (Fig. 31).

Thorax and abdomen velvet-black, with white pubescence; legs black; wings absolutely clear, with the vein closing the discal cell quite straight.

Length. Male, 4 mm.

Hab. Bellerive.

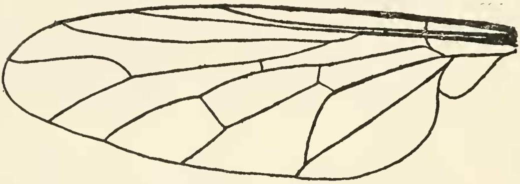

Fig. 31. Wing of *Geron hilaris*.

Male. Eyes joined from the vertex to the antennæ, the line of junction being much depressed. Proboscis black, long and slender. Antennæ black, about the same length as the head, the first joint about twice the length of the second, the third longer than the first two together. Thorax velvet-black, with long, dense, upstanding, white pubescence, and a little short, white, depressed pubescence. Abdomen similarly coloured, and with similar pubescence to that of the thorax. Legs entirely black. Wings absolutely hyaline, the vein closing outwardly the discal cell quite straight; halteres pale brown.

This species may be distinguished from *G. dispar* by the straight veinlet closing the discal cell, by the shorter first antennal joint, by the white pubescence, and the clear wings.

G. hilaris I have only met with frequenting flowers on the sand dunes at Bellerive; time of occurrence February.

42. MARMASOMA, Gen. nov. (Fig. 32).

Humpbacked, bristly flies, with the vestiture consisting largely of scales. Abdomen long, narrow and conical, decumbent with the apex upraised; proboscis about one-and-a-half times the length of head; antennæ slender, slightly longer than the head, the first joint fully three times the length of the second, the third a little longer than the first, and provided with a pointed, two-jointed style; femora spinose beneath; tibiæ with numerous long bristles; wings with four posterior cells, which are all open; anal cell also open; discal cell sharply angulated below; number of submarginal cells two.

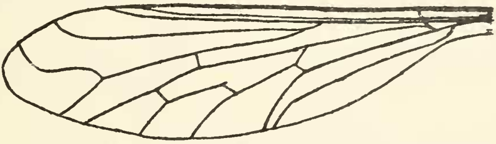

Fig. 32. Wing of *Marmasoma sumptuosa.*

Head about equal in breadth to the thorax; eyes in male joined. Proboscis about one-and-a-half times the length of head. Palpi very slender, nearly one-third the length of the proboscis. Antennæ slender, slightly longer than the head, the first joint bearing short hairs above and very long hairs below, fully three times the length of the second joint, the third very slightly expanded, a little longer than the first, and provided with a thin, two-jointed style, which is about one-third its length. Thorax very convex, bearing numerous bristles and long bristly hairs; scutellum much depressed, bearing marginal bristles. Abdomen of an elongated, conical shape, with the apex upraised, nearly bare. Legs slender, the posterior femora with numerous stout bristles beneath, anterior and middle femora with one or two bristles close to the apex; tibiæ with numerous long bristles; tarsi long, about equal in length to the tibiæ, the joints marked by spurs. Wings with two submarginal and four posterior cells, the latter as well as the anal cell, open; discal cell sharply angulated below, the angle being frequently marked by a recurrent veinlet.

This genus agrees with the North and South American genus *Lepidophora* and the Palæarctic and African genus *Toxophora* in having the vestiture consisting largely of scales. From the former genus it may be distinguished by the shorter and differently proportioned antennæ, with a two-jointed style, from the latter by the four instead of three posterior cells, and by the open anal cell, and from both these genera by the hind-angle of the wings being undeveloped. The shape of the wings more resembles that of the Mediterranean and Western Asiatic genus *Amictus*, and the European and Asiatic genus *Cyllenia*; from the former of these *Marmasoma* is distinguished by the first joint of antennæ being densely hairy, and the third joint bare and provided with a long two-jointed style, also by the sharply-angulated discal cell, and the wide open first posterior cell; from the latter by the two instead of three submarginal cells, by the long proboscis, and the longer and differently formed antennæ; and from both these genera by the scaly vestiture.

Marmasoma therefore appears to form a connecting link between *Lepidophora* and *Toxophora* on the one hand, and *Amictus* and *Cyllenia* on the other. The exact position of this group of genera seems to be open to some doubt. They have been placed, together with a few other genera, in a subfamily, the *Toxophorinæ*. The limits of this subfamily, however, seem to be ill-defined, and until the Australian *Bombylidæ* are properly worked out, and their correct affinities ascertained, I have preferred to place *Marmasoma* in the *Bombylinæ*, with which it seems to show certain relationships.

Marmasoma may be easily distinguished from the other Tasmanian genera of *Bombylidæ* by the humpbacked shape, bristly thorax and legs, and long, bare abdomen. Only one species is at present known.

MARMASOMA SUMPTUOSA, Sp. nov. (Fig. 32).

Thorax dark brown, with two median whitish stripes, bordered inwardly with fulvous, anterior part of dorsum and sides with dense fulvous pubescence; abdomen clothed with fulvous scales, leaving bare a row of large, confluent, dark brown, centre spots; femora black, covered more or less thickly with fulvous scales; tibiæ fulvous, tarsi brown; wings spotted.

Length. Male, 8.5 - 11 mm.

Hab. Bagdad Valley, Hobart. (Also in Victoria.)

Male. Face barely projecting; eyes joined for a long distance, reducing the front to an ocellar tubercle and a lengthened frontal triangle, the former being black, the latter usually yellow. Antennæ black, of the form described in the generic characters, the first joint bearing dense yellow hairs, which are short above, long below, also with a few black hairs above; the third joint and style completely bare. Palpi black, short and slender; proboscis black. Back of head covered with dense fulvous pubescence. Thorax greatly humped, dark brown, with two whitish median stripes, which are bordered inwardly with fulvous; anterior part and sides of thorax with dense fulvous pubescence, and numerous long black bristles; scutellum dark brown, powdered with fulvous scales, and bearing six stout, black, marginal bristles, besides a few weak ones. Abdomen of a dark brown ground-colour, but powdered so extensively with fulvous scales as to appear fulvous, with a row of large, dark brown, centre spots, the whole bare except for a few black hairs on the sides of the first three segments. Legs with femora black, covered below with fulvous scales; tibiæ fulvous; tarsi black; anterior and middle femora with a few black bristles towards the apex, the posterior femora with a complete row of black bristles below; tibiæ with numerous very long black bristles; tarsi with the joints marked by spurs. Wings hyaline, with dark brown costal margin, and suffused dark brown spots on middle of first basal cell, apex of second basal cell, anterior cross-vein, base of cubital fork, the two branches of cubital fork, outer veinlet of discal cell, and middle of veinlet closing discal cell below; the angulation of the discal cell below is frequently marked by a small veinlet entering the cell.

Variation. A male taken at Mangalore on November 8, 1913, differs considerably from the type, the colour being pale grey instead of fulvous, and the long hairs on the first antennal joint white instead of yellow, also in the wings the upper branch of the cubital fork has a small veinlet on its lower side.

This species may be readily recognised by its humped appearance, bristly thorax and legs, narrow bare abdomen, and spotted wings. I had not noticed any specimens prior to 1913, but during the November of that and the following year, it occurred not uncommonly, either settled in the sunshine on bare ground, or frequenting flowers. My dates range from November 8 to November 29, but it probably remains on the wing for some time longer.

BOMBYLIUS (*Sensu lato*).

A large number of Australian species have been described under the name *Bombylius*, but most of these do not belong to the genus in its restricted sense. I have examined the specimens in the collection of the British Museum, which contains all Walker's types, and find that the species seem to fall into four natural groups, distinguished by the closed or open first posterior cell, and the relative length of the first and second basal cells. Another character that shows great variation is the form of the radial vein, which is almost straight in some species and boldly curved up in others. At first I considered that this character might provide generic distinctions, but a careful examination of the different species has led me to the conclusion that it is of specific value only. Confirmation of this view is supplied by the genus *Comptosia*, in which a similar diversity in the form of the radial vein occurs. The Australian species described under *Bombylius* I place in four genera, one of which is new. They are distinguished as follows:

1. First posterior cell closed. 2
First posterior cell open. 3
2. First basal cell longer than the second.
BOMBYLIUS, L.
First and second basal cells of about equal length.
SYSTŒCHUS, Lw.
3. First basal cell much longer than the second.
DISCHISTUS, Lw.
First and second basal cells of almost equal length.
SISYROMYIA, Gen. nov.

Of these genera *Bombylius*, *Systœchus*, and *Sisyromyia* occur in Tasmania.

43. BOMBYLIUS, L. (*Sensu stricto*) (Fig. 33).

Thorax and abdomen broad, covered with dense, furry pubescence; proboscis long and slender; wings with the first posterior cell closed, anal cell open; first basal cell much longer than the second basal cell.

Head small, narrower than the thorax. Eyes joined in male, separated in female. Proboscis long and slender. Antennæ approximated at the base, the first joint much longer than the second, and bearing long hairs, the third differing much in shape and longer than the first two joints together. Thorax considerably arched. Abdomen broad and rounded; both thorax and abdomen clothed with dense furry pubescence. Legs long and slender, with small bristles. Wings usually hyaline, with a brown fore-margin, but sometimes spotted; the first posterior cell always closed far above the wing-margin; anal cell open; the first basal cell considerably longer than the second basal cell.

This genus comprises the well known "Bee flies," which may often be seen hovering over flowers, whilst they suck the nectar with their long proboscis, or at other times settled on the ground in warm sunny places.

Bombylius is a genus of very wide distribution, well represented in the Australian region, but not known to occur in New Zealand. From Tasmania six species have been described, but these do not all belong to the genus in its restricted sense. Of these *B. fuscanus*, *Macq*, is a true *Bombylius*, *B. auratus*, *Walk*, and *B. brevirostris*, *Macq*, and probably also *B. albicinctus*, *Macq*, belong to *Sisyromyia*, whilst the position of *B. tenuicornis*, *Macq*, and *B. consobrinus*, *Macq*, is doubtful. Two other true species of *Bombylius* are now added. Of other Tasmanian species belonging to this group, *Bombylius crassus, Walk*, previously described only from the Australian mainland, is a *Systœchus*, and *Systœchus eulabiatus, Bigot*, is a *Sisyromyia*.

Table of the Tasmanian Species of Bombylius.

1. Golden-haired, very small species; abdomen without any black hairs. Chrysendetus, Sp. nov.
Fuscous-haired species; abdomen with intermixed long black hairs. 2
2. Face in male narrow, about the width of one eye; legs pale red. Fuscanus, Macq.
Face in male broad, about the width of two eyes; legs dark reddish black. Palliolatus, Sp. nov.

In addition to the above two species described by Macquart under the names *Bombylius tenuicornis* and *Bombylius consobrinus*, which are unknown to me, may belong here. The former is described as a red-haired species, with legs red, and wings hyaline, with base and foremargin fuscous. Length, female 8 mm., of proboscis 4 mm. *B. consobrinus* is described as a yellow-haired species, with legs red, and wings grey, with the base and foremargin darkened. Length, male and female, 5.5 mm.

Bombylius fuscanus, Macq.

Syn. ? *Bombylius matutinus*, Walk.

Fuscous-haired species, the abdomen with intermixed, scattered, long black hairs; femora and tibiæ pale red; wings hyaline, with base and basal part of foremargin dark brown; face in male narrow, about the width of one eye.

Length. Male, 5-9 mm.; female, 6 mm.

Hab. Generally distributed. (Also in Victoria.)

Male. Face narrow, and nearly parallel-sided, hardly the width of one eye, fuscous, and bearing dense, long, black hairs. Proboscis slender, about equal in length to the thorax. Antennæ black, the first joint three times the length of the second, and bearing long black hairs, the third strap-shaped, about equal in length to the first two joints together, and terminated by a pointed style. Thorax drab, arched, covered with dense, furry, fuscous pubescence, which is intermixed sparse black pubescence; scutellum similarly coloured. Abdomen drab, bearing sparse fuscous pubescence and scattered, long, black hairs. Femora, tibiæ, and tarsi light red, the tarsi with the tips darkened. Wings hyaline, with base and basal part of foremargin dark brown.

Female resembles the male very closely, but the eyes are widely separated, and the ground-colour of the abdomen beneath the pubescence is black.

Variation. This species varies extremely in size: some specimens being twice the size of others.

The type of *B. matutinus, Walk*, in the British Museum very probably belongs to this species, but it is in too bad condition for absolute identification.

B. fuscanus is a common species in the spring and early summer. My dates range from October 26 to December 24.

BOMBYLIUS PALLIOLATUS, Sp. nov. (Fig. 33).

Fuscous-haired species; abdomen with intermixed long, dense, black hairs; legs dark red or reddish-black; wings hyaline, with base and basal part of foremargin dark brown; face in the male broad, nearly the width of the two eyes together.

Length. Male, 6.5 - 10 mm.; length of proboscis 3 - 5 mm.

Hab. Mangalore.

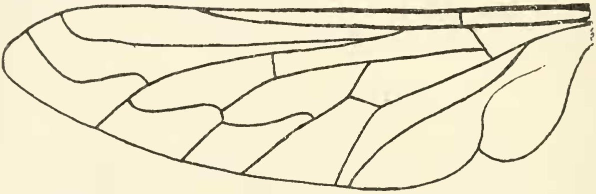

Fig. 33. Wing of *Bombylius palliolatus*.

Male. Face fuscous, broad, nearly the width of the two eyes together, and bearing long black hairs. Eyes short and narrow Front deep brown, very short, but fairly broad; vertex with long black hairs. Proboscis black, slender. Antennæ black, the first joint three times the length of the second, and bearing long black hairs, the third strap-shaped, distinctly longer than the first two joints together, and terminated by a minute pointed style. Thorax drab, covered with very dense fuscous and black furry pubescence, the black hairs being the longest; scutellum similarly coloured, and bearing very long black hairs. Abdomen very broad, clothed with very dense, long, furry, fuscous and black pubescence. Legs dark red or reddish-black; posterior femora with a row of long black bristles; all tibiæ with strong, short bristles; first joint of posterior tarsi distinctly fringed with bristles on the inner side. Wings hyaline or tinged with brown, the base and basal part of foremargin dark brown.

This species bears a very close resemblance to *B. fuscanus*, but is a much more hairy insect, for whilst *B. fuscanus*, even in fresh specimens, has a bare and denuded look, *B. palliolatus* is completely covered with a very thick and long furry pubescence; the legs too are distinctly darker. The chief distinction, however, is found in the face, that of *B. palliolatus* being almost twice the width of *B. fuscanus*, and the eyes being very much shorter.

There is a specimen of this species in the British Museum collection, labelled *Bombylius matutinus*, *Walk.* It is, however, as shown by the broad face, quite distinct from the type of *B. matutinus*, which is also in the Museum collection. The latter specimen is badly denuded, but it may very probably be identical with *B. fuscanus*, *Macq.*

B. palliolatus is a much scarcer species than *B. fuscanus*. It seems to be an early spring species, my dates ranging from September 27 to October 22.

BOMBYLIUS CHRYSENDETUS, Sp. nov.

A very small, golden-haired species. Abdomen without any black hairs; thorax velvet-black; legs light or dark red; wings hyaline, with base and basal part of foremargin brown.

Length. Male, 5 mm.; female, 5.5 mm.

Length of proboscis, 2 mm.

Hab. Mangalore.

Male. Face rather narrow, grey, with long black hairs. Front extremely small, owing to the joined eyes reaching almost to the antennæ; vertex with a tuft of black hairs. Proboscis black, slender, rather short. Antennæ black, about the same length as the head, the first joint about twice the length of the second, and bearing long black hairs, the third strap-shaped, a little longer than the first two joints together, and terminated by a pointed style. Thorax velvet-black, with upright dull yellow pubescence and depressed golden pubescence. Abdomen dull brownish-black, with pubescence similar to that of the thorax. Legs with femora and tibiæ rather dark, dull red; tarsi and apex of tibiæ black; posterior femora with long black bristles beneath. Wings hyaline, with the base and basal part of foremargin brown.

Female resembles the male, but the eyes are widely separated; the hairs of the face yellow instead of black; the front broad, bearing short, depressed, golden pubescence; the pubescence of the body generally brighter; and the legs a paler red.

This species may usually be recognised by its small size, but may occasionally be confused with unusually small specimens of *B. fuscanus*; from such specimens, however, it may be distinguished by the complete absence of any black abdominal hairs, by the ground-colour of the thorax being velvet-black instead of drab, and by the depressed golden pubescence of the thorax and abdomen.

This species bears a considerable resemblance to *B. nanus, Walk.* from Western Australia. It is probably distinct, but the type being in bad condition, the question cannot be satisfactorily settled until more specimens from Western Australia are available for comparison.

B. chrysendetus is not a common species. It frequents teatree blossom during the month of December.

44. SYSTŒCHUS, Lw. (Fig. 34).

Thorax and abdomen very broad, and bearing long furry pubescence; proboscis long, moderately slender; wings with the first posterior cell closed; anal cell open; first and second basal cells of almost equal length.

Head small, set rather low in front of the broader and considerably arched thorax. Proboscis long, moderately slender. Antennæ about the same length as, or rather longer than, the head, the first joint considerably longer than the second, the third usually longer than the first two together, and terminated by a small style. Thorax and abdomen broad, the latter clothed with very dense, furry pubescence, which, in Australian species, is usually banded and produced into tufts on either side of the apex. Legs long, moderately slender; posterior femora with bristles beneath; all tibiæ with short bristles. Wings frequently spotted; first posterior cell closed at a considerable distance above the wing-margin; anal cell open; first and second basal cells of almost equal length.

This genus has so far only been recorded from the Australian region by Bigot, who placed in it a species, *S. eulabiatus*, which I have removed to *Sisyromyia*; several of the species described under *Bombylius*, however, should be placed here. One of these occurs in Tasmania.

SYSTŒCHUS CRASSUS, Walk. (Fig. 34).

Syn. *Bombylius crassus*, Walk.
Bombylius platyurus, Walk.

Thorax fuscous; abdomen clothed in dense, very pale brown pubescence, banded across the middle with rich, dark brown, and with two similarly coloured anal tufts; legs pale red; wings spotted.

Length. Male, 12-13 mm.
Length of proboscis, 5-5.5 mm.
Hab. Southern and Northern Tasmania.

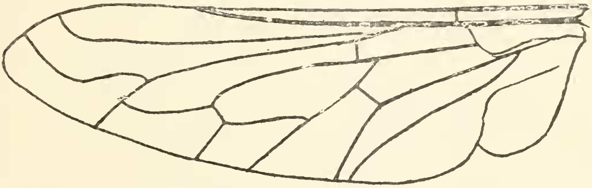

Fig. 34. Wing of *Systœchus crassus.*

Male. Face covered with pale golden pubescence, front with darker golden pubescence. Proboscis black, moderately slender. Antennæ black, the first joint twice the length of the second, and bearing long black hairs, the third about one-and-a-half times the length of the first two together, cylindrical, tapering towards the apex, which is clearly truncated, and terminated by a short, very thin, pointed style. Thorax deep drab, covered with similarly coloured dense pubescence, which, however, if viewed from the front, appears a very pale golden-brown. Abdomen covered with dense, very pale brown pubescence, with a dark brown band across the centre, and two dark brown sub-apical tufts. Legs light red, the bristles of the tibiæ similarly coloured; tarsi apically darkened. Wings hyaline, the foremargin brown, and brown spots situated near apex of first basal cell, at apex of second basal cell, at each lower corner of the discal cell, and at base of the cubital fork.

This splendid insect, the finest of the Tasmanian *Bombylidæ*, may be easily recognised by its banded abdomen and spotted wings. It occurs hovering over low flowers in the spring time, and moves with extreme rapidity, appearing in front of a flower one moment, and vanishing the next. It probably occurs not uncommonly in suitable localities. My dates range from October 21 to November 9.

45. SISYROMYIA, Gen. nov. (Figs. 35 and 36)

Thorax and abdomen broad, bearing long furry pubescence; proboscis long and frequently thickened; wings with the first posterior cell open, and the first and second basal cells of almost equal length.

Head about equal in breadth to the thorax. Proboscis long, frequently thickened, and with the tip sometimes expanded. Eyes bare, joined in male, separated in female. Antennæ approximated at the base, the first joint slender and much longer than the second, the third as long as, or considerably longer than, the first two together, varying in form in the different species. Thorax slightly arched. Abdomen short, about equal in breadth to, or a little broader than, the thorax; both thorax and abdomen clothed with dense, furry pubescence. Legs of medium length; posterior femora spinose beneath; tibiæ with conspicuous bristles. Wings with both the first posterior and the anal cell open; the first and second basal cells of almost equal length; radial vein varying much in the different species, sometimes nearly straight, at others boldly curved up towards the costal margin.

This genus may be easily recognised by the open first posterior cell in conjunction with the first and second basal cells of almost equal length. It is one of the most characteristic Australian genera, and contains a considerable number of species, which, though resembling those of *Bombylius*, have yet a characteristic appearance of their own. Two species have been recorded from Tasmania, whilst a third species, *Bombylius albicinctus*, *Macq*, probably belongs here. The last named species is described as being red-haired; abdomen with a white stripe; femora black; tibiæ red; wings hyaline with foremargin fuscous; length, female, 6mm.

Table of the Tasmanian Species of Sisyromyia.

1. Abdomen with a bright yellow centre stripe; wings dark grey with the base ferruginous; large species. AURATA, Walk.
2. Abdomen unstriped, clothed in uniform long yellow pubescence; wings hyaline with foremargin brownish; small species. BREVIROSTRIS, Macq.

SISYROMYIA AURATA, Walk (Fig. 35).

Syn. *Bombylius auratus*, Walk.

Bombylius crassirostris, Macq.

Thorax and abdomen black, covered with dense, but rather short, golden pubescence; abdomen with a broad, bright yellow, median stripe; femora and tibiæ pale red; wings dark grey with the base ferruginous.

Length. Female, 12 mm.

Hab. "Tasmania and Western Australia" (Walker); also in South Australia.

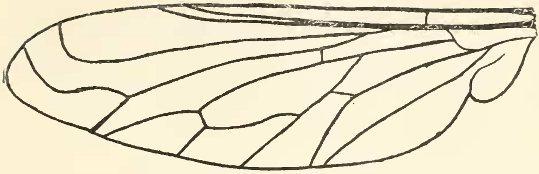

Fig. 35. Wing of *Sisyromyia aurata.*

Female. Face and front covered with golden pubescence; vertex with a tuft of long black hairs. Antennæ black, the first joint about three times the length of the second, and bearing long black hairs, the third considerably longer than the first two together, strap-shaped, terminated by a small bristle-like style, and with one or two long black hairs a little below the apex. Thorax black, covered with short golden pubescence, and with long yellow and black hairs at sides and bordering the scutellum. Abdomen black, with a broad median stripe of bright yellow pubescence, scattered golden pubescence, and abundant long black hairs. Femora, tibiæ, and first joint of anterior and middle tarsi pale red; remaining tarsal joints and the whole of the posterior tarsi black; posterior femora beneath with a complete row of spine-like bristles; all tibiæ with bristles, but these are longest and stoutest on the posterior pair; first joint of posterior tarsi fringed with short bristles. Wings dark grey, with the base ferruginous; discal cell large; radial vein boldly curved up to the costal margin, which it meets at almost a right-angle.

This fine insect is easily recognised by its golden appearance, bright yellow abdominal centre-stripe, and large size. It was described by Walker from Western Australia and Tasmania, but confirmation of its occurrence in Tasmania seems desirable. It also occurs not uncommonly in South Australia.

SISYROMYIA BREVIROSTRIS, Macq. (Fig. 36).

Syn. *Bombylius brevirostris,* Macq.

Systœchus eulabiatus, Bigot.

Thorax and abdomen clothed in long yellow pubescence; femora black; tibiæ red; wings hyaline with foremargin brownish.

Length. Male, 6-7 mm.; female, 6.5 mm.

Hab. Bagdad.

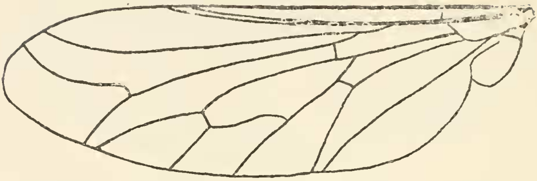

Fig. 36. Wing of *Sisyromyia brevirostris.*

Male. Face covered with pale yellow pubescence, front with pale golden pubescence. Proboscis black, nearly three times the length of the head, with the tip slightly inflated. Antennæ black, the first joint about three times the length of the second, and bearing long yellow hairs, the third about equal in length to the first two together, of a slender strap-shape, with a rounded style-like apex. Eyes joined. Thorax and abdomen of a dull black ground colour, which in fresh specimens is entirely covered with very long, furry, yellow pubescence, but this becomes very easily detached. Legs very slender, femora black, with pale yellow pubescence, anterior and middle tibiæ red, posterior tibiæ brown, the whole bearing minute bristles; tarsi black. Wings hyaline, with the foremargin brownish.

Female resembles the male, but the eyes are very widely separated, and the pubescence of the face and front paler.

This species seems to be very local, but is probably common where it occurs. The males hover in the air in the bright sunshine at a height of some five feet from the ground, but should a cold wind arise they disappear completely. It occurs during February.

Subfamily **Lomatinæ.**

This subfamily may be recognised by the radial vein of the wings being strongly looped before it reaches the costal margin, in conjunction with the short proboscis. The species may be either bare or covered with short pubescence, but never with the long, furry pubescence of the *Bombylinæ*; thorax comparatively flat; abdomen long and frequently flattened; posterior cells always four in number.

Table of the Tasmanian Genera of Lomatinæ.

1. Abdomen rather broad and greatly flattened, bearing abundant short pubescence; tibiæ with bristles; antennæ with a long style. COMPTOSIA, Macq.
2. Abdomen very narrow, almost cylindrical, practically bare; tibiæ absolutely without bristles; antennæ without a style. DOCIDOMYIA, Gen. nov.

46. COMPTOSIA, Macq.

Antennæ composed of three very short joints and a long aristiform style; abdomen rather broad and distinctly flattened; both thorax and abdomen moderately pubescent; wings with the radial vein strongly looped before its end; number of submarginal cells two or three.

Head about equal in breadth to the thorax. Eyes very narrowly separated in male. More widely in female. Proboscis either porrect, and about half the length of head, or completely concealed within the oral aperture. Antennæ with the three joints very short, and almost concealed by stiff pubescence, the third terminated by a long aristiform style, which is about equal in length to the three antennal joints together. Thorax somewhat arched, and moderately pubescent. Abdomen rather broad and distinctly flattened, with fairly long lateral pubescence. Legs moderately slender; tibiæ with short bristles. Wings with either two or three submarginal cells, and four posterior cells, the latter being all open, as is also the anal cell; radial vein much looped before its end, and frequently strongly recurrent; the median cross-vein situated close to the apical end of the discal cell.

This genus contains a large number of Australian species. These fall into two divisions, according to the number of the submarginal cells, which may be either two or three. Macquart originally described the genus as possessing three submarginal cells, but afterwards placed in it species in which only two were present; this, I think, is quite correct, as the number of submarginal cells seems to me to be a specific character only. The considerable variation in the curvature of the radial vein also seems to be only of specific value. Many of the Australian species were described by Walker under the genus *Anthrax*.

From Tasmania three species have been described.

Table of the Tasmanian Species of Comptosia.

1. Wings brown, with hyaline spots, and a white hyaline band across the tips; number of submarginal cells two. MACULIPENNIS, Macq.
   Wings hyaline, with foremargin broadly brown, and four small brown spots below. 2

2. Two submarginal cells. GEOMETRICA, Macq.
   Three submarginal cells. CORCULUM, Walk.

COMPTOSIA MACULIPENNIS, Macq

Syn. *Anthrax ocellata*, Walk.
Anthrax inclusa, Walk.
Anthrax cognata, Walk.

Wings brown, with hyaline spots, and a white hyaline band across the tips.

Length. Male and female, 12 mm.

Hab. Bagdad Valley.

Male. Face black, bearing dense golden pubescence. Proboscis short and stout, less than half the length of head. Antennæ black, about the length of head, the base concealed by black and golden hairs. Front black, with long black hairs above, and golden hairs below. Thorax black, bearing short golden pubescence, and a few long black hairs posteriorly. Abdomen black, the hind-margins of segments with short, golden, depressed pubescence, and sides of abdomen with long hairs, which are yellow on the first two, and black on the remaining segments. Legs, brownish-black. Wings large, brown, with a white hyaline band across the tips, and hyaline spots situated on the discal cell, and on the base of the first posterior cell; the radial vein is very slightly recurrent, and meets the costal margin at almost a right angle.

Female resembles the male very closely, but the eyes are more widely separated, and the white band across the wing-tips rather less conspicuous.

C. maculipennis is less frequently met with than *C. geometrica*, but at the same time can hardly be described as scarce. It occurs during February.

COMPTOSIA GEOMETRICA, Macq.

Syn. *Anthrax obscura*, Walk.

Wings hyaline, with the foremargin broadly brown, the brown colour being curved up in a half-circle above the base of the cubital fork, in the middle of which hyaline half-circle is a brown spot, and there are also three small brown spots below.

Length. Male and female, 10-11 mm.

Hab. Generally distributed.

Male. Face covered with rather long, pale golden pubescence. Proboscis stout, less than half the length of head. Antennæ black, about half the length of head, the base concealed by yellow hairs. Eyes very narrowly separated. Front black, bearing rather long black hairs. Thorax black, with very short, depressed, golden dorsal pubescence and long, black, lateral pubescence, and dense white pubescence below. Abdomen deep brown, the dorsum with scattered, short, golden, depressed pubescence centrally, and similar white pubescence towards the sides; sides of abdomen with long black hairs. Legs brown. Wings large, hyaline, with the foremargin broadly brown, the brown colour being curved up in a half circle above the base of the cubital fork, in the middle of which hyaline half-circle is a brown spot, and there are also brown spots at each lower corner of the discal cell, and at the apex of the second basal cell; number of submarginal cells two; the four posterior and anal cells all open; the radial vein strongly recurrent before reaching the costa.

Female resembles the male very closely, but has the eyes more widely separated.

Variation. This species varies greatly in size, extremely small specimens being sometimes met with.

C. geometrica is a common species. It first appears towards the end of September, and may be found settled on the ground in warm sunny places throughout the early summer.

COMPTOSIA CORCULUM, Walk.

Syn. *Anthrax corculum*, Walk.
Comptosia tricellata, Macq.

Judging from Macquart's description, I think that there is little doubt that his *C. tricellata*, described from Tasmania, is the same as *C. corculum*, a well-known mainland species. This species resembles *C. geometrica* very closely, but is distinguished by possessing three instead of two submarginal cells. I have not met with it in Tasmania personally.

47. DOCIDOMYIA, Gen. nov. (Fig. 37.)

Antennæ much shorter than the head, the first and second joints rounded, the third bulb-shaped, without a style; abdomen very narrow and cylindrical, both thorax and abdomen practically bare; legs short, without bristles; wings with the radial vein strongly looped and slightly recurrent; first posterior and anal cells wide open; number of submarginal cells two.

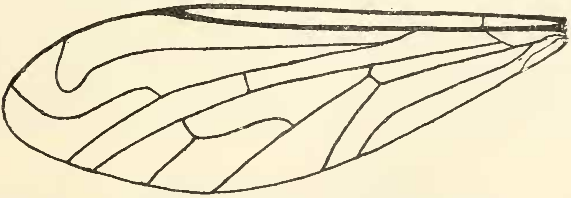

Fig. 37. Wing of *Docidomyia puellaris.*

Head large, broader than the thorax. Proboscis concealed within the oral aperture. Eyes in male narrowly separated. Antennæ short, about one quarter the length of head; the first and second joints rounded and of about equal length, the third bulb-shaped, about as long as the two first joints together, and without a style. Thorax narrow, not at all arched, with a little short pubescence, but without any evident bristles. Abdomen bare, long, narrow, and cylindrical. Legs short, slender, and quite bare, even the tibiæ being without bristles. Wings of medium length, but narrow, the alula wanting, and the hind-angle quite sloped away; median cross-vein upright, situated a little beyond the middle of the discal cell; radial vein strongly looped and slightly recurrent; the four posterior cells and the anal cell all wide open; number of submarginal cells two; halteres long-stalked.

This genus is proposed for two undescribed species, one of which occurs both in Victoria and Tasmania, whilst the other seems to be confined to Victoria. The Tasmanian species is a slender, delicate fly, and bears more resemblance to a Syrphid than to one of the *Bombylidæ*.

DOCIDOMYIA PUELLARIS, Sp. nov. (Fig. 37).

Face, front, and thorax black; abdomen black, the incisions of segments usually white; legs black, with the knees light brown; wings hyaline.

Length. 7 mm.

Hab. Bagdad. (Also in Victoria.)

Face, front, and antennæ black. Thorax black, with soft white lateral pubescence; both thorax and scutellum without bristles. Abdomen black, the hindmargins of segments usually narrowly white; first segment with white pubescence at sides. Legs black, with the knees light brown. Wings hyaline.

This species may be easily recognised by its slight, slender shape, absence of bristles, black colouration, and clear wings. The undescribed Victorian species, referred to previously, which may possibly be found to occur also in Tasmania, has the wings light brown, and the cubital fork possesses a long recurrent veinlet.

D. puellaris seems to be generally scarce; the only two specimens that I have met with occurred on November 7 and January 19 respectively.

Subfamily **Anthracinæ.**

This subfamily may be recognised by the venation, the bifurcation of the radial and cubital veins taking place at a right-angle, almost opposite the median cross-vein. The species are rather flattened in shape, never humpbacked or conspicuously bristly, usually moderately pubescent, but never with the dense furry pubescence of the *Bombylinæ.*

In Tasmania three genera are known to occur.

Table of the Tasmanian Genera of Anthracinæ.

1.	Wings with three submarginal cells.	2
	Wings with only two submarginal cells.	3
2.	Antennæ with a distinct style.	EXOPROSOPA, Macq.
3.	Antennæ without a distinct style.	ANTHRAX, Scop.
	Antennæ with a style bearing an apical pencil of hairs. (Velvet-black species, with wings mostly black).	ARGYRAMŒBA, Schin.

It should be noted that although the species of *Anthrax* have usually only two submarginal cells, yet varieties occur in which three are present, or occasionally there may be two on one wing and three on the other. In any case, however, the species may be distinguished from those of *Exoprosopa* by the want of any differentiated antennal style.

48. EXOPROSOPA, Macq.

(*Trinaria*, Muls. *Argyrospila*, Rond. *Heteralonia*, Rond.
Defilippia, Lioy. *Exoptata*, Coquill.)

Third joint of antennæ elongate-conical, with a fairly long, clearly-differentiated, terminal style, ending in a microscopic bristle, but without any apical pencil of hairs. Proboscis short. Claws of posterior tarsi with a basal tooth. Wings with three submarginal cells; the four posterior cells and the anal cell all open.

Two species of *Exoprosopa* have been described by Macquart from Tasmania, neither of which is known to me, and I am unable to say whether or not they are correctly placed. The position of the second species (*E. bicellata*) is particularly doubtful, owing to its possessing only two submarginal cells. The following are Macquart's descriptions.

EXOPROSOPA OBLIQUEFASCIATA, Macq.

Black; head with white pubescence; abdomen banded with white, the sides spotted with brown; wings hyaline, with the base, costa, and two oblique stripes brown.

Length. 12 mm.

Hab. "Tasmania."

EXOPROSOPA BICELLATA, Macq.

Black, with red tomentum. Wings brown with hyaline spots; number of submarginal cells two.

Length. Male, 11 mm.

Hab. "Tasmania."

49. ANTHRAX, Scop. (Fig. 38.)

Antennæ without any clearly-differentiated style; wings with two submarginal cells; the bifurcation of the radial and cubital veins takes place at a right angle, almost in a line with the median cross-vein.

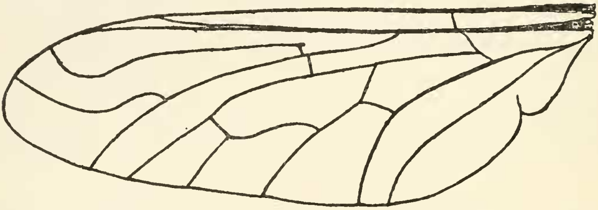

Fig. 38. Wing of *Anthrax minor.*

Head large, globular, as wide as the thorax. Proboscis short, not in the least projecting. Antennæ very small and short, widely separated at the base, the first joint cylindrical, the second cup-shaped, the third an elongated bulb-shape, without any differentiated style, the apex terminated by a microscopic bristle. Eyes separated in both sexes, but more widely in the female than in the male. Thorax rather large, flattened, and pubescent; scutellum with or without marginal bristles. Abdomen longer than the thorax, sometimes conspicuously flattened. Legs slender, the tibiæ with small, weak bristles. Wings with normally two submarginal cells, but varieties occur in which three are present, or there may be three on one wing and only two on the other; radial vein curved upwards, but never strongly looped as in the *Lomatinæ*; upper branch of cubital fork much curved upwards; posterior cells four in number, which are all open, as is also the anal cell. The wings in Australian species are usually hyaline, with the costal margin brown, but they may be quite hyaline, or entirely suffused with brown.

A large number of Australian species have been described under the genus *Anthrax*, but many of these do not really belong here, but should be placed in the genera *Hyperalonia*, *Exoprosopa*, *Argyramœba*, and *Comptosia*. Of the true species of *Anthrax*, eight of the sixteen Australian species at present known occur in Tasmania.

The species belonging to this genus may usually be found settled on the ground in hot, sunny places, in which situations several of the species are abundant.

Table of the Tasmanian Species of Anthrax.

1. Wings with at least one half brown. 2

Wings hyaline, or at most with the foremargin brown. 3

2. Wings cut sharply in a nearly straight line into a deep brown basal half and a hyaline apical half. INCISA, Macq.

Wings with the base and costal half suffused with brown, which melts gradually into the hyaline portion without any distinct line of demarcation; abdomen with two white bands. ALTERNANS, Macq.

3. Wings completely hyaline; pubescence at sides of thorax yellowish-white; small species. MINOR, Macq.

Wings practically hyaline, but a little darkened along the course of the closely adjacent mediastinal and subcostal veins; pubescence at sides of thorax fulvous; small to middle-sized species. NIGRICOSTA, Macq.

Wings hyaline, with the base and foremargin distinctly brown. 4

4. Large species (usually about 12 mm). 5

Small species (5 to 8 mm.). 6

5. The brown colouration of the foremargin never descends so far as the bifurcation of the radial and cubital veins, which is always clear; the black pubescence on sides of abdomen is confined to the third and subsequent segments, that on the second segment being pale yellow. MARGINATA, Walk.

The brown colouration of the foremargin covers the bifurcation of the radial and cubital veins; the black pubescence on sides of abdomen commences on the second segment. VELOX, Sp. nov.

6. Pubescence at base of abdomen yellowish-white; wings rather dull. SIMPLEX, Macq.

Pubescence at base of abdomen silvery-white; wings brightly glistening. ARGENTIPENNIS, Sp. nov.

ANTHRAX INCISA, Macq.

This species was originally described by Macquart from Tasmania. I have not met with it personally, but there is a specimen in the collection of the British Museum. It may be recognised by having the wings cut sharply into a deep brown basal half and a hyaline apical half, the dividing line running obliquely from a point on the costa about two-thirds the distance from the base of wing, to the posterior margin about one third the distance from the base. Macquart describes the abdomen as black with apex silvery, and length as 7 mm.

ANTHRAX ALTERNANS, Macq.

Front brown; thorax and abdomen brownish-black, the latter with two white bands; wings with the base and costal half suffused with dark brown, tips and posterior margin clear.

Length. Male and female, 11-12 mm.

Hab. Generally distributed.

Male. Head much produced in front. Face black, with a little yellow pubescence. Front dark brown, with short, stiff, black hairs bordering the base of antennæ outwardly. Antennæ black. Thorax brownish-black, with a collar of stiff brown hairs; scutellum testaceous, with black marginal bristles. Abdomen brownish-black, the second and fourth segments with a white band, the third with a very narrow yellow band, apex with white scaly pubescence; sides of abdomen with soft white and black pubescence. Legs black. Wings strongly suffused with dark brown, but tips and posterior margin hyaline.

Female resembles the male very closely, but the eyes are rather more widely separated.

This species may be readily recognised by its brownish wings and abdomen with two white bands. It seems to be generally common in Tasmania, and in the collection of the British Museum are specimens, apparently identical, from Western Australia, so the species is probably of very wide distribution.

A. alternans may commonly be met with settled on the ground in warm sunny places, during the spring and early summer.

ANTHRAX MINOR, Macq. (Fig. 38.)

Syn. *Anthrax vitrea,* Walk.

A small species with perfectly clear wings; thorax and abdomen brownish-black; pubescence at sides of thorax yellowish-white, at base of abdomen clear white.

Length. Male and female, 5-8 mm.

Hab. Bagdad Valley. (Probably generally distributed.)

Male and female. Thorax brownish-black, with dull white or yellowish-white pubescence at sides; scutellum similarly coloured, without any marginal bristles. Abdomen brownish-black, with short, depressed, white and yellow pubescence disposed in bands, which becomes very quickly denuded; base of abdomen fringed with clear white hairs on each side. Legs with femora black or brownish-black, tibiæ black or light brown, tarsi black. Wings absolutely clear, bright and glistening.

This species may be easily recognised by its small size and perfectly clear wings; the only species with which it can be confused is *A. nigricosta*, but the latter species has the long pubescence at the sides of thorax tawny instead of white.

A. minor is a fairly common species, and is probably generally distributed. My dates range from January 11 to March 1.

ANTHRAX NIGRICOSTA, Macq.

Wings practically hyaline, but a little darkened along the course of the closely adjacent mediastinal and subcostal veins; pubescence at sides of thorax fulvous; abdomen with a white band on the second segment; a species that varies very greatly in size.

Length. Male and female, 5-8 mm.

Hab. Generally distributed in Tasmania, Victoria, South Australia, and New South Wales.

Male. Eyes most closely approximated in front of the ocellar tubercle. Face narrow, black. Front black, with brown and white pubescence around the base of the antennæ. Antennæ black. Thorax brownish-black, with long fulvous pubescence in front and at sides; scutellum similarly coloured, with black marginal bristles. Abdomen black, with a white pubescent band on the second segment, which is usually visible even in denuded specimens; remainder of dorsum with short white and brown pubescence, which falls off very readily; the first segment has long tawny pubescence at sides, the second with long white pubescence at sides; remaining segments and apex with long scattered black hairs. Legs black, the femora frequently yellowish beneath. Wings hyaline, but frequently a little darkened along the course of the closely adjacent mediastinal and subcostal veins; base of wings yellow.

Female resembles the male very closely, but the eyes are more widely separated.

Variation. A specimen taken by myself at Mangalore on December 31, 1911, has three submarginal cells instead of the usual two; in other respects, however, it agrees perfectly with *A. nigricosta*, and I consider that it is merely a variety of that species. Other specimens show great variation in respect to size, some specimens being quite twice the size of others.

A. nigricosta may be recognised without much difficulty by the fulvous hairs on each side of the thorax, in conjunction with the white band on the second abdominal segment, and the practically hyaline wings. It seems to be common and generally distributed. My dates range from December 31 to February 13.

ANTHRAX MARGINATA, Walk.

Syn. *Anthrax fuscicostata*, Macq.

A large species. Wings hyaline with foremargin brown, but the brown colouration never descends so far as the bifurcation of the radial and cubital veins, which is always clear; abdomen broad and flattened, the black pubescence on sides confined to the third and subsequent segments, that on the second segment being pale yellow.

Length. Male and female, 11.5 - 14 mm.

Hab. Tasmania (generally distributed), Victoria, and New South Wales.

Male. Face and front black, the former covered with short white or yellow pubescence. Antennæ black. Thorax and scutellum dull brown or brownish-black, the thorax with pale fulvous anterior and lateral pubescence, and a tuft of white pubescence above the base of the wings, the scutellum with black marginal bristles. Abdomen broad and conspicuously flattened, black, with white pubescent bands on the second, fourth, and sixth segments, and narrow yellow pubescent bands on the third and fifth segments, but all these bands are very easily rubbed off, and are frequently wanting in dried specimens; the long pubescence along the sides of the abdomen, however, is present even in denuded specimens, and is of more value for identification; that on the first and second segments is dull yellow or yellowish-white, on the third yellow or white anteriorly, black posteriorly, on the fourth principally white, on the fifth and sixth principally black, on the apex white. Legs black. Wings hyaline, with the foremargin brown, but the brown colour never descends so far as the bifurcation of the radial and cubital veins, which is always clear.

Female resembles the male very closely, but the eyes are more widely separated.

This species may be easily recognised by its large size and flattened shape, in conjunction with the diagnosis given above. It is common, and generally distributed in Tasmania, and seems to be distributed over the whole of Eastern Australia. My only records are for February, but no doubt the species remains on the wing throughout the summer season.

ANTHRAX VELOX, Sp. nov.

A large species. Wings hyaline with foremargin brown, the brown colour completely covering the bifurcation of the radial and cubital veins; abdomen not flattened, the black pubescence at sides commencing on the second segment.

Length. Female, 13 mm.

Hab. Bagdad Valley.

Female. Face and lower fourth of front completely covered with short yellow pubescence, upper three-fourths of front black, with short black, and a little short dark yellow, pubescence. Antennæ black, with stiff black hairs at base. Thorax dull brown, with long yellow-brown pubescence anteriorly, and laterally; scutellum a little darker than the thorax, with marginal yellow hairs. Abdomen brownish-black, the dorsum bearing white and yellow pubescence disposed in bands, that on the second, fourth, and sixth segments being white, on the other segments yellow, but all these pubescent bands become quickly denuded; sides of abdomen with long hairs, those on the first segment pale yellow, on the second and third yellow anteriorly, black posteriorly, on the fourth white anteriorly, black posteriorly, on the fifth and sixth black; apex with short yellow and long black pubescence. Legs black, with short depressed yellow pubescence; posterior femora and all tibiæ with short black bristles. Wings hyaline, with the base and foremargin brown, the brown colour completely covering the bifurcation of the radial and cubital veins.

Male. The only specimen of the male that I have seen resembled the female described above very closely, but was considerably smaller in size.

The only other Tasmanian species with which *A. velox* can be confused is *A. marginata.* From the latter species it may be distinguished by the brown colouration of the foremargin being broader, and completely covering the bifurcation of the radial and cubital veins, also by the black tuft-like lateral hairs on abdomen commencing on the second instead of on the third segment; the abdomen also is rounder, and less flattened in appearance. Of the mainland species the only one that *A. velox* resembles is *A. albirufa*, *Walk*, but in the latter species the brown colouration of the wings is diffused from the base, instead of from the middle of the costal margin.

A. velox occurs settled on the ground in sunny places, and may also be found on box bloom; it flies with great rapidity. I have only met with it during January.

ANTHRAX SIMPLEX, Macq.

A small species. Wings hyaline with foremargin brown; pubescence at base of abdomen yellowish-white.

Length. Male and female, 5-6 mm.

Hab. Bagdad Valley. (Also in New South Wales.)

Male and female. Face and front black, bearing short golden pubescence. Thorax dark brown, with yellowish-white or pale brownish-white anterior and lateral pubescence; scutellum dark brown. Abdomen dark brown, with long yellowish-white or very pale brown hairs on each side of the basal segment; dorsum with short, depressed, white and yellow pubescence, forming white bands on the anterior margins of the second and fourth segments, and yellow bands on the remaining segments. Legs black. Wings hyaline, rather dull, with base and foremargin brown.

Variation. A female taken by myself at Mangalore on December 24, 1911, has three submarginal cells on the right wing, and only two on the left.

A. simplex can be easily recognised by its small size, and wings with the foremargin broadly brown. The only other known small species having the wings similarly coloured is *A. argentipennis*, which is distinguished by having the pubescence at base of abdomen bright silvery-white.

A. simplex occurs commonly in the Bagdad Valley during December, and is probably generally distributed.

ANTHRAX ARGENTIPENNIS, Sp. nov.

Wings bright hyaline, with base and foremargin deep blackish-brown; abdomen with long silvery-white pubescence on sides of the first and second segments.

Length. Male and female, 7-10 mm.

Hab. Mangalore.

Male. Head distinctly produced in front; face and front black, with a little short golden pubescence. Antennæ black. Thorax brownish-black, with light brown pubescence in front, and a little silvery-white pubescence at sides; scutellum similarly coloured. Abdomen brownish-black, with dense, long, silvery-white pubescence on sides of the first and second segments; sides of remaining segments and apex with long black hairs; dorsum with short white and yellow pubescence, the former forming a white band on the second segment. Legs black, comparatively stout. Wings hyaline, brightly glistening, the base and foremargin a deep blackish-brown.

Female resembles the male very closely, but the eyes are more widely separated.

This species resembles *A. simplex* somewhat closely, but may be distinguished by the long pubescence on sides of the first and second abdominal segments being bright silvery-white, instead of yellowish-white, by the larger size, and by the more glistening wings with darker foremargin.

A. argentipennis occurs not uncommonly in elevated bush at Mangalore, during the months of December and January. It frequents dry watercourses and similar situations.

50. ARGYRAMŒBA, Schin.

(*Spogostylum*, Willist. *Coquilletia*, Willist.)

Antennæ with a clearly differentiated style, which is terminated by a pencil of hairs.

Head broader than the thorax. Proboscis short, not in the least projecting. Eyes narrowly separated in male, more widely in female. Antennæ very small, the third joint more or less onion-shape, with a style-like prolongation, ending in a differentiated style with an apical pencil of hairs. Thorax bearing dense pubesceence; scutellum without any marginal bristles. Abdomen flattened, broadening posteriorly, with a pointed apex, the whole bearing dense pubescenece, which is longest at the sides. Legs of medium length, slender, tibiæ with rather long, weak bristles. Wings with the typical venation of the *Anthracinæ*; number of submarginal cells two; first posterior cell wide open; anal cell either narrowly open, or closed on the wing-margin.

This genus is represented in Tasmania by a single species, which is easily recognised by its velvet-black abdomen, with silvery-white apex, and almost black wings.

ARGYRAMŒBA MACULATA, Macq.

Syn. *Anthrax maculata*, Macq.
Anthrax australis, Walk.

Thorax and abdomen velvet-black, the apex of abdomen silvery-white; wings with basal half, foremargin, and spots black, the black colour occupying the great part of the wings, remainder hyaline.

Length. Male and female, 7-11 mm.

Hab. Generally distributed. (Also in Victoria and New South Wales.)

Male and female. Face and front black, with short, dense, black hairs. Antennæ black. Thorax black, with a collar of white or yellow hairs, and black hairs at sides. Abdomen black, with apex entirely silvery-white, or with silvery-white on either side, leaving the actual tip black; sides of abdomen with long dense hairs, which are white on the first segment, black on subsequent segments. Legs entirely black. Wings with the base and foremargin very broadly black, the black colour reaching to the hindmargin irregularly beneath the end of the discal cell, and along the hindmargin are four to six isolated, or partly isolated, black spots, but all these black markings differ in size and extent in different specimens, and may be partly confluent.

Variation. Besides the variation in the markings of the wings, referred to above, this species varies very greatly in size, the expanse of wings ranging from 20 mm. to 32 mm.

A. maculata is fairly common in Tasmania, and seems to be very widely distributed on the Australian mainland. It has a fondness for settling on charred stumps and logs in the bush. My dates range from November 7 to January 12.

Family IX. **EMPIDÆ.**

Head small, usually much narrower than the thorax. Proboscis frequently elongated, but sometimes short. Eyes in the male either joined or separated, in the female separated, except in the *Hybotinæ*. Antennæ composed of three joints. Either with or without a terminal style or arista, but the first joint is sometimes difficult to distinguish. Thorax usually gibbous, with, as a rule, well-developed dorsocentral, acrostichal, humeral, posthumeral, notopleural, supraalar, and postalar bristles. Abdomen narrow, either bare or with lateral bristles; the male genitalia large and complex. Legs slender, either nearly bare, or bearing stiff bristles, or tufts of hairs; the first joint of anterior tarsi sometimes inflated in the male. Wings with the anal cell usually shorter than the second basal cell, but in the *Hybotinæ* and *Brachystomatinæ*, equal in length or longer, whilst in the *Tachydromiinæ* it is altogether wanting; the discal cell is also sometimes wanting; the shape of the wings may be normal, or the hind-angle may be altogether sloped away.

The *Empidæ* form a very large family of small flies of inconspicuous appearance, which sometimes occur in great abundance. They are predaceous in their habits, preying on other diptera. Their habits are somewhat diverse. Species of *Hilara* occur flying in numbers over the surface of pools and streams, or, more rarely, over the bare ground; species of *Empis* may be found frequenting flowers or dancing in the air; those of *Leptopeza* frequenting low vegetation. The greater number of Tasmanian species occur in the spring time, whilst two species are found in midwinter; during the height of summer but few species are to be met with.

It will be noticed that in the present Paper I have adopted the spelling *Empidæ* and *Leptidæ*, rather than that of *Empididæ* and *Leptididæ*, as now used by some entomologists. The former spelling has been in use for over a century, and is formed in the usual way from typical genera. The latter spelling is derived from the supposed plural forms of *Empis* and *Leptis*; a generic name, however, can only exist in the singular, as there cannot be more than one genus of the name of *Empis*, or one of that of *Leptis*. Therefore the spelling *Empididæ* and *Leptididæ* is derived from words, which, notwithstanding their Greek origin, have no existence in scientific nomenclature. Under these circumstances I consider that the words *Empididæ* and *Leptididæ* are not only pedantic, but also incorrect.

For our present knowledge of the Australian *Empidæ*, we are largely indebted to Dr. M. Bezzi's "*Empididi Indo-Australiani Raccolti dal Signor L. Biró,*"* in which twenty Australian species are listed. Very little attention, however, has so far been paid to the Tasmanian species, and I am now able to record twenty-three species from Tasmania alone, whilst there is no doubt that when the wetter parts of the island are properly investigated this number will be largely increased.

Five subfamilies have been recorded from the Australian mainland, of which only three are at present known from Tasmania, but as the other two are almost certain to occur, I give the distinctions between all the five subfamilies.

Table of the Australian Subfamilies of Empidæ.

1. Anal cell wanting; discal cell united with the second basal cell. **Tachydromiinæ**
   Anal cell present. 2

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*Annales Musei Nationalis Hungarici, 1904.

2. Hind-angle of wing sloped away. **Hemerodromiinæ**
   Hind-angle of wing well developed. 3
3. Anal cell longer than the second basal cell. (In the aberrant genera *Bicellaria* and *Sciadocera*, in which it is shorter, the discal cell is wanting.) **Hybotinæ**
   Anal cell shorter than the second basal cell. 4
4. Proboscis long; the anal cross-vein (i.e., the veinlet closing the anal cell) strongly recurrent, and becoming confluent with the anal vein. **Empinæ**
   Proboscis short; the anal cross-vein meets the anal vein at a right angle, or almost so. **Ocydromiinæ**

Of the above subfamilies only the three last are at present known to occur in Tasmania, but when the damper parts of the island are properly examined the others are almost certain to be found.

Subfamily **Hybotinæ.**

Two undescribed aberrant genera occur in Tasmania, which probably belong to this subfamily. In one of these, *Ironomyia*, three veinlets arise from the discal cell, instead of two, as in all the other genera in which the discal cell is present; in this character it agrees with the subfamily *Brachystomatinæ*, but its other characteristics seem to show more affinity with the *Hybotinæ*. The other genus, *Sciadocera*, is very aberrant, and differs from all other genera of the *Hybotinæ* in having the eyes in the female widely separated, and in the form of the antennæ.

Table of the Tasmanian Genera of Hybotinæ.

1. Anal cell longer than the second basal cell. 2
   Anal cell shorter than the second basal cell. 3
2. Discal cell emitting three veins; radial vein closely approximated to the cubital, and extending almost to the wing-tip. IRONOMYIA, Gen. nov.
3 Discal cell wanting; first and second basal cells of equal length; eyes in female widely separated. SCIADOCERA, Gen. nov.

51. IRONOMYIA, Gen. nov. (Fig. 39.)

Wings with the anal cell longer than the second basal cell; discal cell with three issuing veinlets; radial and cubital veins closely approximated and of almost equal length.

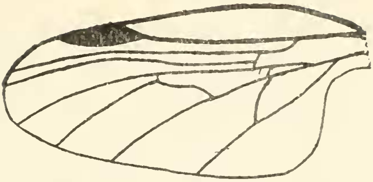

Fig. 39. Wing of *Ironomyia nigromaculata.*

Head broader than the thorax. Eyes (♂) joined from the vertex to the antennæ. Proboscis short, hardly projecting beyond the oral aperture. Palpi rounded, shorter than the proboscis. Antennæ very short, about one-fourth the length of head, the first joint hardly distinguishable, the second a little longer than broad, the third rounded, and provided with a long, thread-like arista, which is apparently jointed almost at its base, the arista being about twice the length of the three antennal joints together. Thorax only slightly arched, with a few weak posterior bristles; scutellum with weak marginal bristles. Abdomen short, conical; male genitalia small and inconspicuous. Legs short, the tibiæ and tarsi of about equal length, the tibiæ thin at the base, but thickening gradually to the apex; all joints practically bare; tarsal claws unusually large, two well-developed pulvilli present, between which are three bristles of equal length. Wings broad, the costa convex and serrated; mediastinal vein fused with the subcostal, which is long, reaching to the sharply-defined stigma; radial vein unusually long, at first well separated from the cubital, after which the two veins converge, almost meeting below the stigma, and then slightly diverge, reaching the margin close together a little above the wing-tip; cubital vein unforked; discal cell long, emitting three veinlets; number of posterior cells four; the three basal cells short, the first a fraction longer than the second, the third a little longer than the first; hind-angle of wing strongly developed.

This remarkable genus may be distinguished at once by its very unusual venation. Only one species is at present known.

IRONOMYIA NIGROMACULATA, Sp. nov. (Fig. 39.)

Thorax and scutellum black; abdomen grey in centre, with a dorsal row of black spots, sides of abdomen black; femora black, with knees yellow; tibiæ yellow, with apex black, and a black ring near the base; wings hyaline, with a clearly-defined yellow-brown stigma.

Length. Male, 4.5 mm.

Hab. Hobart.

Male. Head chiefly occupied by the very large, joined eyes; face small, grey. Antennæ with second joint light brown, third black. Thorax black, with posterior margin grey, the whole bearing scattered, erect, black pubescence, and a few weak, posterior bristles; scutellum brownish-black, with weak black marginal bristles. Abdomen grey dorsally, with a row of black spots extending from the second to the seventh segment; base and sides black; dorsum bare, sides with long, soft, pale pubescence. Legs with femora black, knees yellow; tibiæ yellow, with apex black, and a black ring near the base; tarsi with first three joints yellowish, fourth and fifth black; pulvilli yellow, claws black. Wings hyaline, with a clearly-defined yellow-brown stigma.

Of this species I have only met with a single specimen, which occurred settled on a tree trunk at Hobart, on October 5, 1912.

52. SCIADOCERA, Gen. nov. (Fig. 40.)

Wings with the basal cells short, the first and second of equal length, the anal a little shorter; discal cell wanting; cubital vein unforked; discal vein incomplete at the base, and an incomplete veinlet reaching the margin between the cubital and discal veins. Antennæ very short, the terminal joint large, almost quadrangular, and completely concealing the preceding joints; eyes in female widely separated; thorax greatly arched; abdomen short; legs simple.

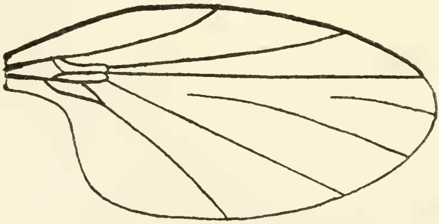

Fig. 40. Wing of *Sciadocera rufomaculata.*

Head placed low down below the greatly-arched thorax. Proboscis concealed within the oral aperture. Eyes in female very widely separated. Antennæ so short that the terminal joint seems to lie directly against the face; it is very large, flattened, almost quadrangular, and provided with a thread-like arista; the terminal joints of the two antennæ touch one another on their inner margins, and reach to the eyes on their outer margins, covering the face, and completely concealing the preceding joints. Front with six stiff bristles—a divergent pair at the centre of the vertex, a single one on each side close to the eyes, and one lower down above each antenna. Thorax greatly arched, with three complete rows of small dorsal bristles, and well-marked humeral, posthumeral, notopleural, supraalar, and postalar bristles, scutellum with four long marginal bristles. Abdomen about equal in breadth to, but a little longer than, the thorax, altogether without bristles. Legs of medium length, bearing a few bristles, the coxæ considerably lengthened. Wings large, unusually broad, the costa strongly convex; mediastinal and subcostal veins anastomosed, cubital vein unforked; discal vein incomplete at the base, and with an incomplete veinlet above; discal cell wanting; the basal cells short, the first and second of equal length, the anal a little shorter.

The correct position of this curious genus is somewhat doubtful. Notwithstanding the very different venation, I am of opinion that it is allied to the genus *Ironomyia* previously described. The venation resembles that of the genera *Microsania* and *Bicellaria*, particularly the latter, but differs from that genus in having the second basal cell only equal in length to, instead of much longer than, the first basal cell. It differs so much, however, from *Bicellaria* in the form of the antennæ, the widely-separated eyes of the female, and the shape of the wings, that I am doubtful whether the resemblance in venation may not be a misleading one. The genera *Microsania* and *Bicellaria* are placed by Lundbeck in the *Hybotinæ*, by Melander in the *Ocydromiinæ*; without wishing to express an opinion as to the correct position of these two genera, I might mention that the new genus now described seems to me to show no relationship whatever with the *Ocydromiinæ*, and that if it is referable to any of the existing subfamilies, it can only be placed in the *Hybotinæ*.

Only one species is at present known.

SCIADOCERA RUFOMACULATA, Sp. nov. (Fig. 40.)

Antennæ orange; face, front, thorax, and scutellum orange-brown; abdomen black, the second to fifth segments bearing each two dull orange-red spots; legs yellow; wings hyaline.

Length. Female, 4 mm.

Hab. Mangalore.

Female. Head situated low down below the greatly arched thorax. Face and front orange-brown; frontal bristles black. Antennæ orange. Thorax and scutellum orange-brown, with black bristles, as described under the generic characters, but quite bare of pubescence. Abdomen with first segment dull orange-red; remaining segments dull black, the second to fifth bearing each two dull orange-red spots; apex with short, black bristles. Legs yellow, with a few scattered black bristles. Wings hyaline, without any trace of a stigma.

This species is easily recognised by the orange-brown thorax, and black abdomen, with ten dull orange-red spots. Only one specimen is known, which was taken by myself on September 25, 1912, in the bush at Mangalore; I searched the same locality for other specimens in succeeding years, but without success.

Subfamily **Empinæ.**

This subfamily, so far as is known at present, is represented in the Australian region by six genera, all of which, with the exception of *Anthepiscopus*, occur in Tasmania. These genera may be recognised by the long, or fairly long, proboscis, and by the anal cross-vein (i.e., the veinlet closing the anal cell) being strongly recurrent, and becoming confluent with the anal vein.

Table of the Tasmanian Genera of Empinæ.

1. Cubital vein forked. 2
   Cubital vein not forked. 4
2. Mediastinal vein curved up at its end, and meeting the costa; anterior tarsi in male, with the first joint conspicuously dilated. HILARA, Meig.
   Mediastinal vein straight, or nearly so, and not meeting the costa. 3
3. Anterior tarsi in male with the first joint conspicuously dilated; metapleural bristles wanting. HILAROPUS, Gen. nov.
   Anterior tarsi in male not at all, or very slightly, dilated; metapleural bristles present. EMPIS, L.
4. Cubital vein connected with the radial vein by a cross-vein. TENONTOMYIA, Gen. nov.
   Cubital vein not connected with the radial vein. RHAMPHOMYIA, Meig.

53. HILARA, Meig. (Fig. 41.)

Anterior tarsi in the male with the first joint conspicuously dilated; mediastinal vein short, curved up at its end, and meeting the costa; length of proboscis about the height of head.

Head about the same breadth or a little narrower than the thorax. Eyes separated in both sexes, very rarely joined in the male. Proboscis in length about the height of head. Antennæ equal in length to or a little longer than the head, the first and second joints short, the third conical, tapering, and terminated by a two-jointed style. Thorax with acrostichal, dorsocentral, and notopleural bristles, and also, usually, a humeral, posthumeral, supraalar, and postalar bristle on each side; metapleura without bristles. Abdomen slender, nearly bare, truncate in male, pointed in female. Legs of medium length, the anterior tarsi in male with the first joint conspicuously dilated, the shape differing in each species. Wings with the mediastinal vein short, curved up at its end, and meeting the costa; cubital vein with a long, narrow fork; discal cell with three issuing veinlets; anal vein weak and generally abbreviated.

The species of *Hilara* occur commonly skimming over the surface of ponds and streams, or, more rarely, over the bare ground. Most of the Tasmanian species are found in the spring time, but one occurs in the late autumn.

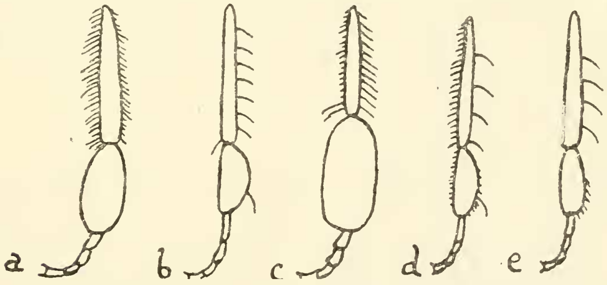

Fig. 41. Right front leg of (a) *Hilara efficiens*, (b) *H. balnearia*, (c) *H. nimia*, (d) *H. nubila*, (e) *H. mollicella*.

Table of the Tasmanian Species of Hilara.

1. Halteres black or dark brown. 2
Halteres yellow or very pale brown. 3
2. Wings brown; thorax brown, striped; anterior tibiæ in male with uniform short hairs; large, robust species. (Length, 6 mm.) Efficiens, Sp. nov.
Wings almost hyaline; thorax black, unstriped; anterior tibiæ in male with very long hairs; small, delicate species. (Length, 3 mm.) Balnearia, Sp. nov.

3. Anterior tarsi in male with first joint enormously dilated; thorax deep black; wings hyaline. NIMIA, Sp. nov.

Anterior tarsi in male with first joint not enormously dilated; thorax brown. 4

4. Thorax with two conspicuous black stripes; femora and tibiæ blackish, with yellow knees; wings brownish; spring species. NUBILA, Sp. nov.

Thorax with four faint stripes; femora and tibiæ uniform pale brown; wings practically hyaline; late autumn species. MOLLICELLA, Sp. nov.

Besides the above species, two species were described by Walker under the names of *Hilara certa* and *Hilara confirmata*, but as I have, unfortunately, been unable to examine Walker's types, I am unable to say to what genus they really belong.

HILARA EFFICIENS, Sp. nov. (Fig. 41a.)

Thorax brown, with two anterior dark brown stripes, and a broader dark brown stripe on each side; scutellum grey, with a fringe of black marginal bristes; abdomen deep brown; anterior and posterior tibiæ in male densely pubescent; wings brown.

Length. Male, 7 - 8 mm.; female, 6 mm.

Hab. Mangalore, Red Gate.

Male. Face and front black. Eyes rather widely separated. Proboscis about equal in length to height of head. Antennæ blackish, a little longer than the head, the first and second joints short, the third about twice the length of the first two together, and terminated by a long, slender style, which is rather more than half its length. Thorax brown, with two anterior, narrow median, and two broad lateral, dark brown stripes; bristles black, dense, but not particularly long; scutellum grey, with a fringe of eight or more black bristles. Abdomen dark brown, with abundant white lateral pubescence. Legs stout, black; anterior and posterior tibiæ, with very dense brown pubescence; anterior tarsi with the first joint considerably inflated, oval, and about equal in length to the other four joints together. Wings brown, with a dark brown stigma; the mediastinal vein curved up, and meeting the costa; cubital fork long, but not very narrow; anal vein fairly long, but not reaching the wing margin.

Female has the abdomen broader and shorter than in the male, the legs nearly bare, and without any sign of inflation.

This species does not seem so confined to the neighbourhood of water as the other Tasmanian species of *Hilara*, but may be found skimming low over the bare ground. It is generally a common species. My dates range from October 1 to December 31.

HILARA BALNEARIA, Sp. nov. (Fig. 41b.)

Thorax and abdomen black; anterior tibiæ with long, scattered, black, hair-like bristles; wings almost hyaline; halteres dark brown.

Length. Male, 3 mm.

Hab. Hobart, Mangalore.

Male. Face and front black; vertex with long, black bristles. Eyes separated. Proboscis stout, hardly as long as the height of head. Antennæ black, the first and second joints short, the third rather more than twice the length of the first two together, and terminated by a long, slender style, which is a little more than half its length. Thorax black, unstriped, with very long, scattered black bristles; scutellum with four marginal black bristles. Abdomen brownish-black, bare of pubescence, but with short black terminal bristles. Legs dark brown, anterior tibiæ with long, scattered, black, hair-like bristles; anterior tarsi with the first joint considerably inflated, and bearing a single, very long black hair on its inner side. Wings faintly tinged with brown, and bearing a brown stigma; the mediastinal vein short, curved up at its end, and meeting the costa; cubital fork long and narrow, the upper branch nearly as long as the lower; anal vein fairly long, and nearly reaching the wing-margin; halteres dark brown.

This species frequents the neighbourhood of water; it is probably widely distributed, though hardly so common as some of the other species. My dates range from September 24 to November 16.

HILARA NIMIA, Sp. nov. (Fig. 41c.)

Front tarsi in male with the first joint enormously dilated; thorax velvet-black, abdomen brownish-black; wings hyaline; halteres yellow.

Length. Male, 4.5 - 5 mm.

Hab. Mangalore. (Probably generally distributed.)

Male. Face and front black; vertex with short, black bristles. Eyes separated. Proboscis about the same length as the height of head. Antennæ black, the first and second joints very short, the third a little more than twice the length of the first two together, and terminated by a slender style, which is rather more than half its length. Thorax with anterior two-thirds velvet-black, posterior third brown; dorsal bristles very short, lateral bristles of medium length; scutellum brown, with four black marginal bristles. Abdomen brownish-black, with posterior margins of segments light brown; sides with both short and long weak, black bristles. Legs black, with the posterior knees narrowly yellow; anterior tibiæ with long, black hairs at apex; posterior tibiæ with short, widely-separated black bristles; anterior tarsi with the first joint enormously dilated. Wings hyaline, with a brown stigma; the mediastinal vein curved gently up to the costa, which it joins; cubital fork long and narrow; anal vein becoming evanescent at some distance from the wing margin; halteres yellow.

This species may be easily recognised by the enormously dilated front tarsi of the male, and the velvet-black thorax. It occurs abundantly skimming over the surface of pools of water in the early spring time. My dates range from September 1 to October 10.

HILARA NUBILA, Sp. nov. (Fig. 41d.)

Thorax light brown, with two narrow, black longitudinal stripes; legs brownish-black, with posterior knees conspicuously yellow; wings tinged with brown, and with a very conspicuous dark brown stigma; halteres pale whitish-yellow.

Length. Male, 3.5 mm.; female, 3 mm.

Hab. Hobart.

Male. Face and front brown; vertex with black hairs. Eyes separated. Proboscis stout, shorter than the height of head. Antennæ with the first and second joints very short, the third slender, about twice as long as the first two together, and terminated by a long style, which is about equal to it in length. Thorax pale greyish-brown, with two narrow black stripes, bounded outwardly by a black spot on either side; dorsal bristles of medium length, lateral bristles long; scutellum pale grey, with four black marginal bristles, the two terminal ones being much the longest. Abdomen deep brown, with weak, black marginal bristles. Legs brownish-black, with posterior knees conspicuously yellow; anterior tibiæ with a few long, very widely-separated, black bristles on the inner side; posterior tibiæ with a few short, black bristles; anterior tarsi with the first joint long and dilated, and bearing short, black bristles on both sides. Wings brownish, with a very distinct dark brown stigma; mediastinal vein short, curved up at its end, and meeting the costa; cubital fork long and narrow, the upper branch almost as long as the lower; anal vein long, and almost reaching the wing-margin; halteres pale whitish-yellow.

Female resembles the male, the thorax being similarly striped; abdomen a lighter brown, and produced into a long ovipositor; anterior tarsi not dilated, but the first joint long and slender, in length rather more than that of the remaining four joints together; wings paler than in the male.

This species may be recognised without difficulty by the conspicuously striped thorax. I found it frequenting the rocks in the bed of a mountain stream at Hobart on November 18, 1913; probably it occurs not uncommonly in similar situations.

HILARA MOLLICELLA, Sp. nov. (Fig. 41e.)

Thorax brown, with four faint brown stripes; legs a uniform pale brown; wings practically hyaline, with a faint stigma; halteres light brown; late autumn species.

Length. Male, 3 mm.

Hab. Mangalore.

Male. Face and front black; vertex with black hairs. Proboscis stout, about as long as the height of head. Antennæ short, the third joint twice as long as the first and second together, and terminated by a slightly thickened style, which is nearly equal to it in length. Thorax brown, with four faint, narrow, brown stripes; dorsal bristles of medium length, lateral bristles long; scutellum grey, with four marginal black bristles. Abdomen brown, darkest towards the apex, and bearing a few short, black bristles. Legs a uniform pale brown; anterior tibiæ with a few widely separated black bristles; posterior tibiæ almost bare, but with a few short, black bristles; anterior tarsi with the first considerably dilated, in shape a lengthened oval, about equal in length to the remaining four joints together. Wings practically hyaline, but with a faint brown tinge; the mediastinal vein short, curved up gently at its end, and meeting the costa; cubital fork long and narrow, the upper branch nearly as long as the lower; discal cell more produced above than in *H. nubila*; anal vein nearly reaching the wing margin.

This species differs from all the other known Tasmanian species of *Hilara* by occurring in the late autumn, instead of in the spring time. I have only met with a single specimen, which occurred at the side of a pond at Mangalore, on April 26, 1914.

54. HILAROPUS, Gen. nov. (Figs. 42 and 43.)

Small or medium sized flies resembling *Hilara*, but distinguished by the mediastinal vein being straight, incomplete, and not reaching the costa; anterior tarsi in the male with the first joint dilated as in *Hilara*.

Head small, narrower than the thorax. Eyes separated in both sexes. Proboscis varying in length from about the height of head to twice the height of head. Antennæ about the same length, or a little longer than the head, the first joint either short or fairly long, the second always short, the third about as long as the first two joints together, either broad or slender, and terminated by a style which is from a quarter to half its length. Thorax rather arched, with bristles as in *Hilara*, and, in the male, sometimes bearing dense pubescence; metapleural bristles wanting. Abdomen slender in the male, broader in the female, in the former sex sometimes bearing lateral tufts of stiff bristles. Legs either moderately short or elongated, the first joint of anterior tarsi in the male always conspicuously dilated, and the femora and tibiæ in the same sex may be densely hairy. Wings with the mediastinal vein nearly straight, and not reaching the costa; cubital fork either short or fairly long; discal cell with three issuing veinlets, which are all complete; anal vein weak, and not reaching the wing-margin.

The species belonging to this genus resemble those of *Hilara*, both in appearance and in habits, but are distinguished by the straight, incomplete mediastinal vein, which does not reach the costa. From *Empis* the genus is distinguished by the greatly dilated front tarsi of the male, and by the absence of metapleural bristles. From the Tasmanian species of *Empis* it may be further distinguished by the shorter proboscis. Four species are at present known, which seem to fall into two natural groups, as given below.

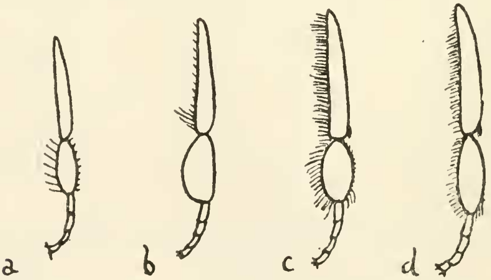

Fig. 42. Right front leg of (a) *Hilaropus pallidifurca*, (b) *H. nigrimanus*, (c) *H. peregrinus*, (d) *H. echinatus*.

Table of the Tasmanian Species of Hilaropus.

1. Small, delicate species; abdomen in the male without lateral tufts of stiff bristles. 2

Large, robust species; abdomen in male with lateral tufts of stiff bristles. 3

2. Legs brown; anterior tarsi in male with first joint moderately dilated; anterior tibiæ with apex bare; abdomen bare. PALLIDIFURCA, Sp. nov.

Legs black; anterior tarsi in male with first joint considerably dilated, and anterior tibiæ with apex bearing long hairs; abdomen hairy. NIGRIMANUS, Sp. nov.

3. Male with thorax velvet-black, abdomen covered with blue tomentum; female with thorax pale grey, flushed above with red, and bearing four black stripes; halteres yellow. PEREGRINUS, Sp. nov.

Male with thorax velvet-black; abdomen dull black with white tomentose side-spots; halteres black. ECHINATUS, Sp. nov.

HILAROPUS PALLIDIFURCA, Sp. nov. (Fig. 42a.)

Thorax and abdomen dark brown; legs light brown; anterior tibiæ with apex bare; wings with the veins faint, particularly the upper branch of the cubital fork; halteres pale brown.

Length. Male, 4 mm.; female, 4.5 - 5.5 mm.

Hab. Bagdad Valley.

Male. Face and front brown. Eyes separated. Proboscis in length nearly twice the height of head. Antennæ dark brown, slightly longer than the head, the first joint twice the length of the second, the third about as long as the first two together, and terminated by a style which is about half its length. Thorax brown, unstriped, with short anterior and long posterior black bristles; scutellum with four long marginal bristles; metapleura without bristles. Legs entirely light brown; all femora and tibiæ practically bare; anterior tarsi with the first joint lengthened and moderately thickened, and bearing on its outer margin a fringe of long hairs; middle and posterior tarsi simple. Wings long, pale brown; mediastinal vein straight, and ending abruptly at a short distance below the costa; cubital fork long, the upper branch very faint, as are also the veinlets closing the discal cell outwardly; anal vein curved, and not reaching the wing-margin; halteres pale brown.

Female resembles the male closely, but the wing-veins are rather more distinct; all the tarsi are simple, and the abdomen is produced into a long ovipositor.

This species frequents pools of water like the species of *Hilara*; it seems to be rather uncommon. My dates range from November 17 to November 30.

HILAROPUS NIGRIMANUS, Sp. nov. (Fig. 42b.)

Thorax and abdomen dark brown, the abdomen hairy; front tibiæ with long hairs at apex; anterior tarsi in the male with first joint much dilated; wings with veins dark and distinct.

Length. Male, 3 - 3.5 mm.

Hab. Mangalore.

Male. Face and front black; vertex with long, black bristles. Eyes separated. Proboscis in length about the height of head. Antennæ rather longer than the head, the first and second joints very small, the third slender, about twice as long as the first two together, and terminated by a slender style, which is about half its length. Thorax brown, unstriped, thoracic bristles of medium length; scutellum with six marginal bristles, the two middle ones the longest, the two outer short; metapleura without bristles. Abdomen brown, with long, black, lateral pubescence. Legs entirely brownish-black, anterior tarsi with the first joint great dilated; anterior tibiæ with a tuft of long, black hairs on the outer side close to the apex; middle and posterior tibiæ with a thin fringe of black hairs; posterior femora with scattered black hairs. Wings brownish, the mediastinal vein straight, becoming evanescent at its tip, and not reaching the costa; cubital fork fairly long, but not narrow; veins of wing dark brown and distinct; halteres dark brown.

This species may be met with commonly in the early spring, skimming the surface of pools of water in company with *Hilara nimia.* My dates range from August 17 to September 1, but it probably remains on the wing until a later date.

HILAROPUS PEREGRINUS, Sp. nov. (Fig. 42c and 43.)

Male with thorax velvet-black; abdomen with first segment black, remaining segments covered with pale blue tomentum. Female with thorax pale grey, flushed above with red, and bearing four very distinct black stripes, the two median ones narrow, the two lateral ones broad, and interrupted in the middle; abdomen black, with only a faint trace of the blue tomentum of the male. Halteres yellow.

Length. Male, 6 - 7 mm.; female, 7 mm.

Hab. Bagdad Valley. (Probably generally distributed.)

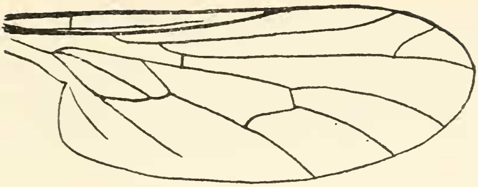

Fig. 43. Wing of *Hilaropus peregrinus.*

Male. Face grey. Front with lower third grey, upper two-thirds black. Proboscis a little longer than the height of head. Palpi a little less than half the length of the proboscis, light brown, with long, pale yellow hairs. Antennæ brownish black, about as long as the head, the first joint twice the length of the second; the third thickened, about twice as long as the first two together, and terminated by a short style, which is about one-quarter its length. Thorax velvet-black, bearing dense black pubescence; only the posterior lateral bristles well-defined; scutellum velvet-black, with a fringe of numerous long, weak, black marginal bristles. Metapleural bristles wanting. Abdomen somewhat conical; first segment black, remaining segments covered with pale blue tomentum, all segments bearing lateral tufts of black bristles; genitalia black, large, and rising well above the level of the abdomen. Legs black, with the knees narrowly orange; front tarsi with the first joint much dilated, and bearing a fringe of hairs outwardly; the first joints of the middle and posterior tarsi are also somewhat swollen; anterior and middle tibiæ clothed with long, black hairs; posterior tibiæ with very long yellow and black hairs; posterior femora with very long yellow hairs below, and black hairs above. Wings rather short, tinged with brown, and with a brown stigma; mediastinal vein nearly straight, and not reaching the costa; cubital fork broad, the upper branch much shorter than the lower; discal cell with three issuing veinlets, which are all complete; wing-veins dark brown and strongly marked; halteres light brownish-yellow.

Female differs so much from the male that it might well be mistaken for a distinct species. The front is entirely grey. Thorax pale grey, the centre of the dorsum flushed with red, and with four very distinct black stripes, the two median ones narrow and entire, but not reaching to the posterior margin, the two lateral ones broad, and interrupted in the middle; scutellum pale grey, with marginal bristles as in the male. Abdomen black, with faint traces laterally and posteriorly of the pale blue tomentum of the male. Legs with all joints simple, and practically bare. Wings as in the male.

The present species, so far as the male is concerned, is easily recognised by the velvet-black thorax and pale blue abdomen; the female, however, closely resembles those of both *Empis bellatorius* and *Hilara efficiens*, and as the females of these three species are very liable to be confused, it may be as well to point out the distinguishing characters. *Hilara efficiens* is distinguished from the other two species by the short, upturned mediastinal vein which meets the costa, whilst *Empis bellatorius* is distinguished by the long proboscis, light brown legs, and thorax with two faint grey stripes, *Hilaropus peregrinus* by the shorter proboscis, black legs, and thorax with four very distinct black stripes.

Hilaropus peregrinus is a common spring species. Both sexes may be seen skimming over the surface of ponds and streams, and sometimes over the bare ground, and may also be met with resting on bracken. My dates range from October 16 to November 7.

HILAROPUS ECHINATUS, Sp. nov. (Fig. 42d.)

Thorax black; abdomen black, with white, tomentose, lateral, hindmarginal spots on each segment, and tufts of very long lateral bristles; legs entirely black; halteres black.

Length. Male, 9 mm.

Hab. Mangalore.

Male. Face and front black. Proboscis about one-and-a-half times the height of head. Palpi short, about one-quarter the length of the proboscis, grey, bearing long yellow hairs. Antennæ black, about the length of the head, the first and second joints short, the third expanded, about twice as long as the first two together, and terminated by a short style, which is about one-third its length. Thorax velvet-black, with two very indistinct pale stripes, the whole bearing dense black pubescence; scutellum velvet black, with a fringe of numerous very long, weak, black bristles; metapleural bristles wanting. Abdomen black, with white tomentose lateral spots on the posterior margins of each segment, the sides with tufts of long, black bristles; genitalia black, hardly rising above the level of the abdomen. Legs black, the first joint of anterior tarsi long and moderately thickened; all femora and tibiæ with dense pubescence, but this is not nearly so long as in *H. peregrinus*. Wings brownish, the mediastinal vein straight, and not reaching the costa; cubital fork very small; all veins dark brown, and strongly marked; halteres black.

This is the largest and finest known species of the Tasmanian *Empidæ.* It bears some resemblance to *H. peregrinus,* but may be easily distinguished by its black and more bristly abdomen, its less dilated front tarsi, and black halteres.

H. echinatus seems to be a scarce species; the only specimens that I have met with were skimming over the surface of a rock-pool in the bush, on November 29, 1914.

55. Empis, L. (Fig. 44.)

Proboscis long; mediastinal vein incomplete, and not reaching the costa; metapleura with bristles; anterior tarsi in male not dilated.

Head small, globular, narrower than the thorax. Proboscis always elongated. Eyes either touching or separated in the male, always separated in the female. Antennæ with the first two joints short, the third elongated and somewhat conical, with a short terminal style. Thorax rather arched, with, usually, dorsocentral, acrostichal, humeral, posthumeral, notopleural, supraalar, and postalar bristles, but some of these may be wanting; metapleura with bristles. Abdomen long and slender, truncate in the male, pointed in the female. Legs slender, the posterior pair sometimes elongated; posterior tarsi in the male sometimes slightly inflated, tibiæ and tarsi in the female sometimes feathered with scaly hairs. Wings occasionally broader in the female than in the male; mediastinal vein incomplete, and not reaching the costa; cubital vein forked, the upper branch usually short and nearly upright, seldom so sloping as in *Hilara*; the discal cell with three issuing veinlets, of which the upper one is occasionally abbreviated; anal vein either complete or shortened; anal cell much shorter than the second basal cell.

The species of *Empis* may be met with frequenting flowers, or settled on vegetation, whilst a few are found hovering in the air. None of the species skim over the surface of water, like those of *Hilara* and *Hilaropus.*

The genus *Empis* contains a large number of species from all parts of the world. It has been divided into a number of subgenera by Bezzi, but with our present small knowledge of the Australian species, it is impossible to say how far these apply to the Australian region. Up to the present time, six species have been described from Australia, but, according to Bezzi, it is doubtful whether some of these may not belong to *Hilara.* From Tasmania only one species has been described; this species, *E. brevirostris*, was described by Macquart from a single female; it is not typical of the genus, and in the absence of a specimen of the male, it is impossible to be certain as to its exact position. Excluding this species, four typical species are now known to occur in Tasmania; all these have the proboscis lengthened, the length varying from two to three times the height of head.

Table of the Tasmanian Species of Empis.

1. Posterior legs elongated; tibiæ of the male apically inflated; eyes joined in male. 2

   Posterior legs not elongated; tibiæ not inflated; eyes separated in both sexes. 3

2. Thorax dark grey, with two pale grey stripes; femora black, with the base yellow; wings brown. BELLATORIUS, Sp. nov.

3. Thorax orange; abdomen brown; femora reddish-yellow; wings tinted with brown. SERICATUS, Sp. nov.

   Thorax black or blackish. 4

4. Abdomen black, with hindmargins of segments yellow; femora black; tibiæ light brown; wings clear, without a stigma; cubital fork long; medium-sized species (length 6 mm.) AQUILUS, Sp. nov.

   Abdomen black; femora and tibiæ a uniform olive-brown; wings with a stigma; cubital fork short; very small species (length, 3 mm.) FLABILIS, Sp. nov.

EMPIS BELLATORIUS, Sp. nov.

Thorax dark grey, with two median pale grey stripes; abdomen black; femora black, the posterior pair with basal third yellow, anterior and middle pairs with only extreme base yellow; anterior and middle tibiæ yellow; posterior tibiæ black in male, yellow, with apex black, in female; wings brown, with a dark brown stigma.

Length. Male, 6 mm.; female, 7 mm.

Hab. Bagdad Valley. (Probably generally distributed.)

Male. Face black; proboscis in length about twice the height of head. Eyes joined, occupying the whole front. Antennæ black, the third joint elongated, nearly three times as long as the first and second joints together, and terminated by a long, pointed style, which is about half its length. Thorax dark grey, with two very distinct, pale grey median stripes, which extend from the anterior margin to the middle of the dorsum, and with long, black lateral and posterior bristles; scutellum with six black marginal bristles. Abdomen brownish-black, with white lateral pubescence; genitalia very large, almost orbicular. Legs with the posterior pair lengthened; all femora slender; posterior tibiæ thickened gradually from base to apex; anterior tarsi with first joint slightly thickened; femora black, the posterior pair with basal third yellow, anterior and middle pairs with only extreme base yellow; anterior and middle tibiæ yellow, posterior tibiæ black, with knees yellow; tarsi black, the first joint of anterior and middle pairs with basal two-thirds yellow, of posterior pair with only extreme base yellow; the anterior tibiæ bear outwardly short, black pubescence of uniform length, the middle tibiæ a comb of extremely long black hairs, the posterior tibiæ both short, and a few very long, black bristle-like hairs, which are densest at the apex. Wings brown, with a dark brown stigma; the mediastinal vein rather long, and nearly reaching the costa; cubital vein curved downwards, the upper branch of fork curved outwards towards the tip; discal cell truncate, the three issuing veinlets complete; anal vein not quite reaching the wing margin.

Female resembles the male very closely, but the eyes are separated, the thorax a paler grey, which makes the two pale grey anterior stripes less distinct, and the abdomen long and pointed. The pubescence on the legs is more uniform, that on the anterior and middle tibiæ being of almost equal length, that on the posterior tibiæ very short, with a row of widely-separated long black bristles.

E. bellatorius is a common species in the bush in the early spring time. It hovers in small flocks in the air, and seems to be of inquisitive habits, as it will approach and hover round the head of anyone who stops to watch it. My dates range from September 3 to September 25, but probably it remains on the wing until a somewhat later date.

EMPIS SERICATUS, Sp. nov. (Fig. 44.)

Thorax and scutellum orange; abdomen orange-brown or dark brown; femora, tibiæ, and tarsi yellow, with apices of all joints darkened; wings tinged faintly with brown, stigma faint, yellow-brown.

Length. Female, 6 mm.

Hab. Mangalore.

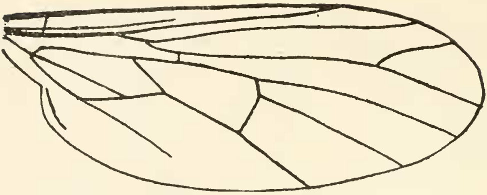

Fig. 44. Wing of *Empis sericatus.*

Female. Face and front brown. Proboscis a little more than three times the height of head. Antennæ black, the first joint about twice the length of the second, the third three times as long as the first two together, and terminated by a thin pointed style, which is about one-third its length. Thorax orange, almost bare of pubescence, but with very long, black, lateral, and posterior bristles; scutellum with two long, black, marginal bristles; metapleural bristles black, fan-like. Abdomen dark brown, with ovipositor yellow-brown, almost bare, but basal segments with a few black lateral bristles. Legs simple, femora, tibiæ, and tarsi yellow, with apices of all joints blackish, the whole almost bare of pubescence, but with numerous short black bristles. Wings tinged faintly with brown, and with a very faint, yellow-brown stigma; mediastinal vein short and incomplete; cubital fork long, the upper branch more than half the length of the lower; discal cell short, truncate; anal vein indistinct, and not quite reaching the wing-margin; halteres yellow.

This species may be easily recognised by its orange thorax. It occurred fairly commonly on low vegetation in the garden of my house at Mangalore. My dates range from October 11 to November 6.

EMPIS AQUILUS, Sp. nov.

Thorax black, with two brown median stripes, bordered outwardly with brown tomentum; scutellum black, with outer margin brown; abdomen black, with hindmargins of segments brownish yellow; femora brownish black; tibiæ and tarsi light brown; wings absolutely hyaline, without any sign of a stigma.

Length. Male, 6 mm.

Hab. Mangalore.

Male. Face and front brown. Eyes widely separated. Proboscis in length almost three times the height of head. Antennæ black, the first joint about twice the length of the second, the third about three times as long as the first two together, and provided with a slender style, which is about one-third its length. Thorax black, with brown tomentum on sides, and two narrow brown median stripes, and bearing long, black, lateral and posterior bristles; scutellum black, with outer margin brown, and two long, black marginal bristles; metapleural bristles black. Abdomen black, with hindmargins of all segments brownish-yellow, and lateral hindmarginal black bristles. Legs short, without any sign of inflation; femora brownish-black, with sparse black pubescence; tibiæ light brown, the anterior pair with rather short black pubescence, middle pair with both short black pubescence and a few very long bristle-like hairs, posterior pair with stiff black bristles; tarsi brown, with tips blackish. Wings absolutely hyaline, venation as in *E. sericatus* (see fig. 44); mediastinal vein short and incomplete; cubital fork long, the upper branch more than half the length of the lower; discal cell short, truncate, the three issuing veinlets complete; anal vein short, and not nearly reaching the wing-margin; halteres pale brown.

This species is closely allied to *E. sericatus*, but is easily distinguished by its different colouration. It occurred sparingly in the garden of my house at Mangalore during the month of November.

EMPIS FLABILIS, Sp. nov.

Thorax and abdomen black; legs a uniform brownish-black; wings hyaline, with a brown stigma; lower branch of the cubital fork in a line with the stem, and not curved downwards, upper branch short; a very small species, with palpi unusually conspicuous.

Length. Male and female, 3 mm.

Hab. Mangalore.

Male. Face and front black; eyes separated. Proboscis in length nearly three times the height of head. Palpi unusually conspicuous, a little less than the length of head, the two joints of almost equal length, the second slightly knobbed at apex, and terminated by a long hair. Antennæ black, rather broad, the first and second joints short, the third about twice as long as the first two together, and provided with a short, slender style, which is about one-third its length. Thorax black, with short anterior and long posterior bristles; scutellum with four marginal black bristles. Abdomen black, the segmentations indistinctly marked with white, nearly bare, but with a little short, black lateral pubescence. Legs with femora, tibiæ, and tarsi a uniform brownish-black, with black pubescence. Wings hyaline, with a brown stigma;

mediastinal vein short and incomplete; cubital vein with a short fork, the lower branch in a line with the stem, and not curved downwards, upper branch short; discal cell truncate, the three issuing veinlets complete; anal vein incomplete, hardly extending beyond the anal cell.

Female has the posterior tibiæ broader, and first joint of posterior tarsi narrower, than in the male, and the abdomen is produced into a long ovipositor; otherwise it resembles the male very closely.

This species is easily dintinguished from all the other known Tasmarian species of *Empis* by its very small size, whilst the very long proboscis will at once distinguish it from similar species of *Hilara*.

E. flabilis frequents flowering heaths in the bush in the early spring time. It is apparently local, but probably common where it occurs. I have only met with it during the month of September.

56. TENONTOMYIA, Gen. nov. (Fig. 45.)

Wings with the cubital vein simple, but connected with the radial vein by a cross-vein; antennæ with a very long aristiform style; proboscis less in length than the height of head, and bearing long hairs; legs very slender and quite simple.

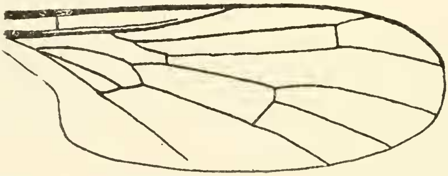

Fig. 45. Wing of *Tenontomyia gracilipes.*

Head a little narrower than the thorax. Proboscis thick, a little shorter than the height of head, and bearing long hairs. Eyes separated in both sexes. Antennæ with the first and second joints extremely small, the third expanded, nearly oval in shape, and drawn out at the apex into a narrow point, from which springs a long aristiform style, which is about twice as long as the three antennal joints together. Palpi not distinguishable. Thorax considerably arched, dorsum almost bare, but with a few long lateral and posterior bristles; scutellum with marginal bristles. Abdomen with short, lateral bristles; genitalia of the male narrow, but lengthened. Legs long, particularly the posterior pair, and very slender, all joints simple, and practically bare of either bristles or pubescence. Wings of medium size; mediastinal vein straight, and apparently becoming coalescent with the subcostal; radial and cubital veins simple, but connected by a perpendicular cross-vein; discal cell nearly triangular, with three issuing veinlets, which are all complete; anal vein indistinct, but reaching the wing-margin; first basal cell slightly longer than the second, the second slightly longer than the third.

This genus may be recognised by the very distinct venation, also by the unusually long antennal style. Only one species is at present known.

TENONTOMYIA GRACILIPES, Sp. nov. (Fig. 45.)

Thorax light brown; abdomen dark brown, with black lateral bristles; femora, tibiæ, and tarsi light brown, the tarsi apically darkened; wings tinged with brown, and with a light brown stigma.

Length. Male, 5.5 mm.

Hab. Mangalore and Northern Tasmania.

Male. Face and front brown. Proboscis orange-brown, thickened, and a little shorter than the height of head. Eyes separated. Antennæ black, of the form described under the generic characters. Thorax light brown, unstriped, devoid of pubescence, but with two rows of fairly long black dorsocentral bristles, and long black lateral bristles; scutellum with four black marginal bristles. Abdomen dark brown, with a few black lateral hindmarginal bristles. Legs very slender, bare, light brown, with the tarsi apically darkened. Wings with the venation described under the generic characters, tinged with brown, and with a pale brown stigma.

Of this species I have personally only come across a single specimen, which occurred in the bush at Mangalore on September 25, 1912, but Mr. Littler has kindly sent me for examination several specimens from Northern Tasmania, so the species is probably more common in that part of the island.

57. RHAMPHOMYIA, Meig. (Fig. 46.)

Proboscis long; wings with the cubital vein unforked, and not connected with the radial by any cross-vein.

Head small and almost globular. Eyes either joined or narrowly separated in the male, always separated in the female. Antennæ with the first two joints short, the third conical and provided with a short style. Thorax rather arched, with or without bristles. Abdomen slender, consisting of eight segments; genitalia of male varying considerably in the different species; ovipositor of female long and produced. Legs slender. Wings with the mediastinal vein not reaching the costa; cubital vein unforked; discal cell varying much in shape and length, but with always three issuing veinlets; stigma usually present.

This genus is represented in Tasmania by two small, delicate species, which are liable to be overlooked. It has not previously been recorded from the Australian region.

Table of the Tasmanian Species of Rhamphomyia.

1. Wings with a distinct stigma; the three veins issuing from the discal cell do so almost in a line, at a nearly equal distance from the base of wing, the end of the discal cell being almost rectangular; autumn species. APRILIS, Sp. nov.
2. Wings with a faint stigma; the lowest veinlet issuing from the discal cell does so much nearer the base of wing than the two above, the discal cell being drawn out above into a long point; spring species. SEPTEMBRIS, Sp. nov.

RHAMPHOMYIA APRILIS, Sp. nov. (Fig. 46.)

Thorax and abdomen grey; legs black; wings with a distinct stigma; the three veins issuing from the discal cell do so almost in a line, at a nearly equal distance from the base of wing, the end of the discal cell being almost rectangular; autumn species.

Length. Male, 3 mm.

Hab. Mangalore.

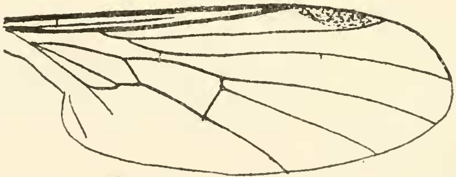

Fig. 46. Wing of *Rhamphomyia aprilis.*

Male. Face and front black. Proboscis about equal in length to height of head. Palpi pale yellow, about two-fifths the length of the proboscis. Antennæ about the same length as the head, the first and second joints very short, the third thickened at the base, and tapering gradually to the apex, twice as long as the two first joints together, and terminated by a long style, which is fully half its length. Thorax grey, with short, stiff, median, and a few longer lateral, bristles; scutellum with four black marginal bristles. Abdomen grey, with white lateral pubescence; genitalia rising considerably above the level of the abdomen. Legs black, femora and tibiæ with short bristles. Wings hyaline, with pale yellow-brown veins, and a distinct stigma; cubital vein simple; discal cell with three complete issuing veinlets, which leave it almost in a line, at a nearly equal distance from the base of wing, the end of the discal cell being almost rectangular; anal vein very short, hardly extending beyond the anal cell.

Of this species I came across several specimens dancing in the air, near a small stream at Mangalore, on April 19, 1914, but have not met with it on any other occasion; it is evidently a late autumn species, and from its small size is liable to be overlooked.

RHAMPHOMYIA SEPTEMBRIS, Sp. nov.

Thorax and abdomen grey; legs brown; wings with a faint stigma; the lowest veinlet issuing from the discal cell does so much nearer the base of wing than the two upper ones, the discal cell being drawn out above into a long point; spring species.

Length. Female, 3 mm.

Hab. Mangalore.

Female. Face and front brown. Proboscis long, in length nearly twice the height of head. Palpi not distinguishable. Antennæ black, about the length of head, the first and second joints short, the third rather more than twice as long as the first two together, and terminated by a style which is nearly half its length. Thorax grey, dorsum nearly bare, but with long lateral bristles; scutellum with four long black, almost upright, bristles. Abdomen grey, nearly bare, but with a little whitish lateral pubescence. Legs dark brown, with the knees very narrowly yellow, all joints bearing very small bristles. Wings hyaline, with dark brown veins, and a faint brown stigma; discal cell drawn out into a long point above, so that the lowest issuing veinlet does so much nearer the base of wing than the two upper ones; anal vein continued well beyond the anal cell, but becoming obsolete half-way to the wing-margin.

This species bears a close resemblance to *R. aprilis*, but is distinguished by the different form of the discal cell, by the longer proboscis, and by the darker veins of the wings; it is also a spring instead of an autumn species.

R. septembris seems to be rare, but may merely have been overlooked. I have personally only come across a single specimen, which occurred settled on vegetation at Mangalore, on September 13, 1914.

Subfamily **Ocydromiinæ.**

This subfamily is very nearly allied to the *Empinæ*, and in some cases it is difficult to draw a line of distinction between them. The *Ocydromiinæ*, however, can usually be recognised by the anal cross-vein meeting the anal vein at more or less a right-angle, and not becoming confluent with it. Two genera, both of very wide distribution, are known to occur in Tasmania.

Table of Tasmanian Genera of Ocydromiinæ.

1. Antennæ with a long arista. 2
2. Discal cell with three issuing veinlets.
MICROPHORUS, Macq.
Discal cell with only two issuing veinlets.
LEPTOPEZA, Macq.

58. MICROPHORUS, Macq. (Fig. 47.)

Proboscis not longer than the height of head. Antennæ with the third joint attenuated beyond a broad base, and terminated by a long arista. Wings with the cubital vein unforked; discal cell with three issuing veinlets, which are all complete; anal cross-vein rounded and slightly recurrent; anal vein continued only a short distance beyond the anal cell.

To this genus I ascribe provisionally a Tasmanian species, which seems to come nearer to it than to any other genus, although it is not quite typical. It differs principally in the much longer antennal style, but agrees in the form of the anal cell, and the incomplete anal vein, although the latter extends well beyond the anal cell.

The genus *Microphorus* is placed by Lundbeck in the *Ocydromiinæ*, by Melander in the *Empinæ*. Personally, it seems to me to be intermediate between these two subfamilies, though I think that its affinities are nearest to the *Ocydromiinæ*.

MICROPHORUS HIEMALIS, Sp. nov. (Fig. 47.)

Antennæ black, front pale grey; thorax pale brown, with two narrow dark brown stripes; abdomen brown; legs entirely light brown; wings hyaline, with veins yellow-brown.

Length. Female, 3 mm.

Hab. Mangalore.

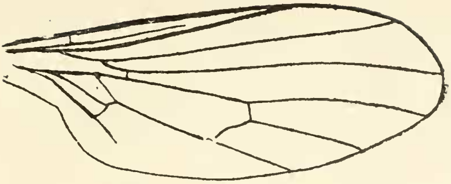

Fig. 47. Wing of *Microphorus hiemalis.*

Female. Face and front pale grey. Proboscis a little shorter than the height of head. Palpi very short, less than one-fourth the length of the proboscis. Antennæ—without the style—about half the length of head, the first two joints very small, the third with a broad base and pointed apex, terminated by a long aristiform style, which is a little longer than the three joints together. Front with ocellar and vertical bristles. Thorax pale brown, with two narrow, dark brown stripes, bearing long dorsal and lateral bristles; scutellum with two black, erect, marginal bristles. Abdomen brown; ovipositor brownish-yellow. Legs entirely light brown, without any distinct bristles. Wings hyaline, with a brownish tinge, without any trace of a stigma; halteres yellowish-white.

This species bears some resemblance to the species of *Rhamphomyia* already described, but may be distinguished by the long aristiform style. It is a winter species, frequenting low vegetation during the month of July.

59. LEPTOPEZA, Macq. (Fig. 48.)

Antennæ with a long arista; discal cell with only two complete issuing veinlets, though a third short, incomplete one is also sometimes present.

Head a little narrower than the thorax. Proboscis short, hardly extending beyond the oral aperature. Eyes joined in both sexes, though sometimes only touching below the antennæ. Antennæ a little longer than the head, the first and second joints of almost equal length, the third about twice the length of the first two together, and terminated by a long arista, which varies in length from that of the third joint to one-and-a-half times the length of the three joints together. Thorax much arched, usually bearing acrostichal and dorsocentral bristles, also a notopleural, a postalar, and, more rarely, a supraalar bristle; scutellum with two or more marginal bristles. Abdomen slender. Legs either nearly bare, or distinctly hairy or bristly. Wings with the mediastinal vein incomplete, cubital vein unforked, anal vein sometimes very faint; discal cell with normally two issuing veinlets, but more rarely there is in addition a short, incomplete one, leaving the cell above the other two.

The flies comprised in this genus are small, delicate insects, which may usually be found resting on vegetation. In Tasmania five species are known to occur, two of which are identical with species described by Bezzi from New South Wales.

Table of the Tasmanian Species of Leptopeza.

1. Discal cell with a third short issuing veinlet; thorax orange, with two black posterior spots; abdomen black. BIMACULATA, Bezzi.
   Discal cell with only two issuing veinlets. 2
2. Thorax orange, unspotted; abdomen black. RUBRITHORAX, Sp. nov.
   Thorax black or grey. 3
3. Legs yellow; posterior femora banded with dark brown before the apex; legs very bristly. PULCHERRIMA, Bezzi.
   Posterior femora not banded. 4
4. Femora and tibiæ entirely light yellow, without any sign of darkening; posterior femora with only a few short apical bristles; costa of wings not bristly; anal cross-vein distinct. LEVICOSTA, Sp. nov.
   Legs yellow, but with the femora darkened above; posterior femora with numerous long bristles; costa of wings bristly; anal cross-vein indistinct. SERRATICOSTA, Sp. nov.

LEPTOPEZA BIMACULATA, Bezzi.

Thorax orange, with two black, rounded posterior spots; abdomen brownish-black; legs yellow, with the knees narrowly black; wings hyaline, with a brown stigma; the discal cell with an incomplete issuing veinlet above the other two.

Length. Male, 3 mm.

Hab. Hobart.

Male. Face black. Proboscis brown. Antennæ black, distinctly longer than the head, the first and second joints very short, the third narrow and lengthened, about four times as long as the first two together, and terminated by an arista which is about two-thirds its length. Thorax orange, with two black, rounded, posterior spots; scutellum orange, with two long black terminal bristles. Abdomen bare, dark brown, or brownish-black, the basal and apical segments being the darkest. Legs with femora and tibiæ pale yellow, with knees black, the femora with also a faint blackish banding before the apex; femora shortly spinose beneath; all tibiæ with two black bristles; tarsi brownish. Wings hyaline, with a brown stigma; the discal cell with a short, incomplete veinlet above the two usual complete ones.

This species was described by Bezzi from a male taken at Mount Victoria, New South Wales. In Tasmania I have only met with it at the Cascades, Hobart, where it is probably not uncommon; time of occurrence, October.

LEPTOPEZA RUBRITHORAX, Sp. nov.

Thorax dark orange, unspotted; abdomen black, indistinctly reddish at the base; femora and tibiæ very hairy, yellow, the tibiæ brown at apex; wings hyaline.

Length. Female, 4.5 mm.

Hab. Hobart.

Female. Face and proboscis black. Eyes joined. Antennæ black, the first and second joints short, the third about three times as long as the first two together, and terminated by an arista which is about equal to it in length. Thorax dark orange, unspotted, bare, with a long and a short notopleural bristle, and a long postalar bristle; scutellum similarly coloured to the thorax, with six black marginal bristles, the two middle ones being the longest. Abdomen black, indistinctly reddish at the base; ovipositor long, yellow, with apex black. Legs yellow, the tibiæ and tarsi apically darkened; both femora and tibiæ are very hairy, the former being also spinose beneath. Wings hyaline, without any distinct stigma; cubital vein strongly waved; discal cell with two issuing veinlets; halteres pale whitish yellow.

This species may be distinguished without difficulty by the uniform dark orange thorax. I have only come across a single specimen, which occurred at the Cascades, Hobart, on October 4, 1912.

LEPTOPEZA PULCHERRIMA, Bezzi.

Thorax shining black; abdomen brownish-black, the three basal segments with sides and segmentations yellow; legs bristly, yellow, the posterior femora with a dark brown band shortly before the apex; wings hyaline.

Length. Male, 4.5 mm.

Hab. Mangalore.

Male. Eyes joined. Antennæ distinctly longer than the head, the first and second joints short, the third rather more than twice as long as the first two together, and terminated by an arista which is longer than the three antennal joints together. Thorax shining black, with long lateral bristles; scutellum grey, with two long, black terminal bristles. Abdomen brownish-black, the three basal segments with sides and segmentations yellow, the whole bearing long white pubescence. Legs yellow, the posterior femora with a dark brown band shortly before the apex; posterior tibiæ with middle and apex brown; tarsi with apices of segments brown; front legs almost bare; middle and posterior femora and tibiæ with long black bristles. Wings hyaline, with a brown stigma; discal cell large, with two issuing veinlets; anal vein curved, distinct and continued far beyond the anal cell; anal cross-vein short, and not quite reaching the anal vein, thus leaving the anal cell slightly open.

This species was described by Bezzi from a female taken at Mount Victoria, New South Wales. In Tasmania I have only taken it high up in the hills that bound the Bagdad Valley on its eastern side, so the species is probably a mountain one. My dates range from November 3 to March 16.

LEPTOPEZA LEVICOSTA, Sp. nov. (Fig 48.)

Thorax grey; abdomen shining black; legs yellow, without any sign of darkening; posterior femora with only a few short apical bristles; wings with the costa not bristly, and the anal cross-vein distinct.

Length. Male, 3 mm.; female, 3.5 - 4 mm.

Hab. Mangalore.

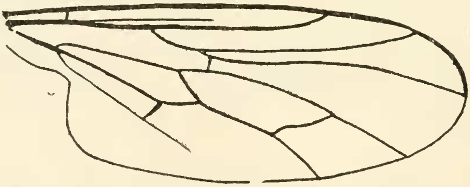

Fig. 48. Wing of *Leptopeza levicosta*

Male. Proboscis black, stout, short, but protruding well beyond the oral aperature; palpi pale yellow, very short. Antennæ black, longer than the head, the first and second joints short, the third about three times as long as the first two together, and terminated by an arista, which is about equal to it in length. Thorax grey, almost bare, but with two notopleural and one postalar bristles on each side; scutellum with two long, black, upright, terminal bristles. Abdomen shining black, bare. Legs entirely yellow, without any sign of darkening; posterior femora with a few small black apical bristles; anterior tibiæ with one, middle tibiæ with about two, and posterior tibiæ with several, long black bristles; tarsi apically darkened. Wings with the costa not bristly; discal cell with two issuing veinlets; anal cross-vein distinct, but anal vein faint; halteres pale yellow.

Female resembles the male very closely, but the abdomen is produced into a long, narrow ovipositor.

This species seems to be fairly common. The male I have taken on wattle blossom, the females frequenting low vegetation and on a window. My dates range from September 22 to November 1.

LEPTOPEZA SERRATICOSTA, Sp. nov.

Thorax grey; abdomen shining black; legs yellow, with the femora darkened above; posterior femora with numerous long bristles; costa of wings bristly; anal cross-vein indistinct.

Length. Male, 2.75 mm.

Hab. Mangalore.

Male. Proboscis extending slightly beyond the oral aperture; palpi very short, whitish. Antennæ a little longer than the head, the first and second joints very short, the third about three times as long as the first two together, a little expanded at the base, and tapering gradually to the apex, and terminated by a slightly shorter arista. Thorax grey, with one humeral, two notopleural, one supraalar, and two postalar bristles on each side; scutellum with black marginal bristles. Abdomen shining black, bare, genitalia very large. Legs yellow, the femora darkened above, all joints more or less bristly; posterior femora with numerous long, black bristles; anterior tibiæ with about two, middle and posterior tibiæ with numerous, long black bristles. Wings hyaline, with the costa bristly; discal cell with two issuing veinlets; both the anal cross-vein and anal vein very faint.

This species is remarkable for the fact that it occurs during the winter; it frequents low vegetation in the bush during the first half of July, and though probably not uncommon is apt to be overlooked.

Family X. DOLICHOPODIDÆ.

Head about the same width as the thorax; the vertex more or less excavated. Eyes usually separated in both sexes, but sometimes joined below the antennæ in the male; only joined above the antennæ in the genus *Diaphorus*. Proboscis short and fleshy; palpi very short, usually resting on the proboscis. Antennæ consisting of three joints and an arista, the first two joints always short, the third either short or long, the arista usually much longer than the three antennal joints together, but sometimes short, and occasionally differing in length in the two sexes, and its position may be either apical, subapical, dorsal, or basal. Thorax bristly, with short, but well defined, acrostichal bristles, which may be either uniserial or biserial, dorsocentral, humeral, posthumeral, presutural, postalar and supraalar bristles also usually present; scutellum with from two to six marginal bristles. Abdomen conical or long and cylindrical, frequently bearing lateral bristles. Legs usually of moderate length, but sometimes elongated, and, in the male, frequently exhibiting some ornamental structure. Wings with the second basal cell and the discal cell united; anal cell very short; mediastinal vein short, and usually united with the subcostal, which is also short; discal vein usually simple, but occasionally forked; wings either hyaline or banded, but never with any trace of a stigma.

Most of the flies belonging to this family are partly or altogether metallic green in colour, but this may be varied with metallic blue, grey, or violet; even the most soberly-coloured species usually exhibit at least a metallic tinge. Frequently a great difference exists between the two sexes, and owing to this fact, and also because the chief generic and specific distinctions are shown by the male, I have, with the exception of the unmistakeable genus *Sciapus*, only described those species in which the male is known to me. This gives a total of twelve Tasmanian species, but this number is likely in the future to be greatly increased.

Table of the Tasmanian Genera of Dolichopodidæ

1. Discal vein forked ... SCIAPUS, Zell.
   Discal vein not forked. ... 2

2. Legs extremely long and slender; eyes in male joined for a short distance below the antennæ. ... ARACHNOMYIA, Gen. nov.
   Legs comparatively short. ... 3

3. Eyes in the male joined above the antennæ; third antennal joint short, usually broader than long, with arista dorsal or subapical. DIAPHORUS, Meig.

Eyes separated in both sexes. 4

4. Last part of postical vein (i.e., the part from the discal cell to the wing-margin) much longer than the posterior cross-vein; antennæ in male with the third joint elongated, with the arista arising almost from its base. LIPAROMYIA, Gen. nov.

Last part of postical vein not longer than the posterior cross-vein; antennæ with the third joint rounded and the arista dorsal. HYDROPHORUS, Fall.

60. SCIAPUS, Zell. (Fig. 49.)

(*Psilopus*, Meig.)

Slender metallic flies, having the discal vein forked, the upper branch distinct, and often bent or angulated in the middle, the lower straight and indistinct; posterior cross-vein (i.e., the veinlet closing the discal cell) straight, waved, or angulated.

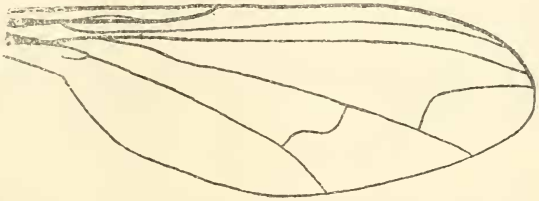

Fig. 49. Wing of *Sciapus chalceus*.

Head as broad or broader than the thorax; vertex rather deeply excavated. Eyes large, separated in both sexes. Antennæ situated a little above the middle of the head in profile, all joints short, but the third a little the longest, and bearing a very long dorsal arista. Thorax usually bare of pubescence, but with acrostichal bristles, which are biserial, six dorsocentral, a humeral, a posthumeral, two notopleural, a presutural, two or three supraalar, and a postalar bristle; scutellum with two marginal bristles, and on either side a small hair. Abdomen long and slender, with or without lateral bristles. Legs long and slender, with a few small bristles. Wings with the discal vein forked, the upper branch of which, as well as the posterior cross-vein, is either straight, waved, or angulated; anal vein weak, and not reaching the wing-margin.

The Australian species placed in this genus are not quite homogeneous, and will probably require further subdivision; until, however, further material from different parts of Australia is available for comparison, it seems best to leave all the species as they were originally described.

Table of the Tasmanian Species of Sciapus.

1. Posterior cross-vein angulated in the middle. 2
   Posterior cross-vein straight or almost so. 4
2. Wings with three brown bands, that nearest the base short, the others long. Trifasciatus, Macq.
   Wings hyaline; legs black. Grandis, Macq.
   Wings hyaline, except that the posterior cross-vein and the upper branch of the discal vein are suffused with brown; legs yellow. 3
3. Antennæ orange; scutellum violet; angulation of the posterior cross-vein marked outwardly by a distinct veinlet. Brevicornis, Macq.
   Antennæ black; scutellum green; angulation of the posterior cross-vein without any outward veinlet. Chalceus, Sp. nov.
4. Wings with two brown bands. Discretifasciata, Macq.
   Wings hyaline; legs yellow, with femora green in the male. Dispar, Macq.
   Wings hyaline; legs black; abdomen densely hairy in the male. Nigropilosus, Macq.

Sciapus trifasciatus, Macq.

Thorax metallic green; scutellum metallic blue; abdomen metallic green, banded with black; legs yellow; wings with three brown bands, that nearest the base very short, the others long.

Length. Male, 5.5 - 6 mm.; female, 5.5 mm.

Hab. Generally distributed.

Male. Face usually silvery-grey, but the upper part occasionally metallic green. Front metallic green or grey. Antennæ dark red, with apex of third joint black. Thorax metallic green; scutellum metallic blue. Abdomen metallic green, with anterior half or third of each segment black, and bearing very long, stiff, and shorter hair-like, black lateral bristles. Legs with femora and tibiæ dull yellow, tarsi, and also sometimes apex of tibiæ, black; the tibiæ bear a few short black bristles. Wings with the posterior cross-vein angulated in the middle, the angulation being marked outwardly by a small veinlet, and bearing three cross-bands, the basal one very broadly interrupted in the centre, with the upper part sometimes indistinct, the others entire, but not reaching the hind-margin.

Female resembles the male very closely, and differs chiefly in the broader and more pointed abdomen.

S. trifasciatus is the commonest species of the genus, and seems to occur abundantly everywhere in the bush, during the months of December and January.

SCIAPUS GRANDIS, Macq.

This species is described by Macquart as golden-green, with the scutellum blue; antennæ black; femora black; tibiæ red; wings hyaline; the posterior cross-vein sinuated.

Length. Male, 8 mm.

Hab. "Tasmania."

S. grandis is unknown to me; it should be readily recognised by the black femora in conjunction with the hyaline wings and large size.

SCIAPUS BREVICORNIS, Macq.

Thorax brown, with metallic green and violet reflections; scutellum violet; abdomen metallic green, with violet reflections; legs entirely light yellow; wings with the upper branch of the discal vein and the posterior cross-vein suffused with brown.

Length. Male, 8 mm.

Hab. Mangalore.

Male. Face and front grey or black. Antennæ orange. Thorax light brown, with green and violet reflections; scutellum violet. Abdomen metallic green, with violet reflections, the anterior margins of third and fourth segments light yellow-brown; all segments with long black lateral bristles; and second and third segments with also black posterior dorsal bristles. Legs light yellow, the tarsi apically darkened; tibiæ with a few black bristles. Wings with the upper branch of the discal vein and the posterior cross-vein suffused with dark brown; posterior cross-vein angulated in the middle, the angulation being marked outwardly by a conspicuous veinlet; halteres yellow.

This species occurs amongst tussocks of long grass; it appears to be local, but is probably common where it occurs. My dates range from December 2 to December 24.

SCIAPUS CHALCEUS, Sp. nov. (Fig. 49.)

Thorax metallic green, with bronze reflections; scutellum metallic green; abdomen metallic green or bronze; legs yellow; upper branch of the discal vein and the posterior cross-vein suffused with light brown, the posterior cross-vein angulated in the middle, but the angulation not marked by any veinlet.

Length. Female, 6 mm.

Hab. Mangalore.

Female. Face and front grey. Proboscis large and fleshy, in length about one-third of the height of head. Antennæ black. Thorax metallic green, with bronze reflections, but the whole rather dull in appearance, and not with the vivid colouring of *S. trifasciatus*; acrostichal bristles short but distinct, the dorsocentral and lateral bristles long; scutellum dull metallic green, with two long black marginal bristles. Abdomen dull metallic green or bronze; the first segment and posterior halves of the second to fourth segments with a whitish tomentose appearance. Legs light yellow, with the tarsi apically darkened; tibiæ with a few small black bristles. Wings with the upper branch of the discal vein and the posterior cross-vein suffused with light brown; the posterior cross-vein angulated in the middle, but the angulation not marked by any veinlet.

This species, which is the same size as the common *S. trifasciatus*, may be distinguished from that species by the absence of any cross-bands on the wings; from *S. brevicornis* it is distinguished by the angulation of the posterior cross-vein being unmarked by an outer veinlet, by the smaller size, darker antennæ, and duller colouration.

S. chalceus frequents tree-trunks in the bush, in which localities it may be not uncommon. My dates range from January 18 to March 21.

SCIAPUS DISCRETIFASCIATUS, Macq.

This species is described by Macquart as green; abdomen with incisions black; posterior tibiæ in the male with a black ring; wings with two separated brown bands.

Length. Male and female, 4 mm.

Hab. "Tasmania."

According to Macquart's figure this species resembles *S. trifasciatus*, but the wing-tip is clear, and the posterior cross-vein is straight. It is unknown to me.

SCIAPUS DISPAR, Macq.

This species is described by Macquart as green; legs yellow, femora green in the male; wings hyaline.

Length, 4.5 mm.

Hab. "Tasmania."

In Macquart's figure the posterior cross-vein is given as straight. The species is unknown to me.

SCIAPUS NIGROPILOSUS, Macq.

Thorax (♂) blue-green, (♀) bronze-green; abdomen (♂) blue-green or bronze-green, (♀) bright cupreous; legs black; thorax and abdomen in the male bearing dense black pubescence.

Length. Male, 4.5 - 5 mm.; female, 4.5 mm.

Hab. Generally distributed.

Male. Face and front metallic blue-green or bronze-green. Eyes widely separated. Antennæ black. Back of head with a fringe of long white hairs. Thorax and scutellum blue-green; abdomen blue-green or bronze-green; both thorax and abdomen bearing long, stiff, black pubescence. Legs entirely black, the femora with extremely long black hairs. Wings tinged with grey, the subcostal vein long; radial and cubital veins of nearly equal length, and almost parallel; posterior cross-vein straight.

Female differs considerably in appearance from the male; thorax bronze-green instead of blue-green; abdomen shorter, more conical, and brightly cupreous; and the thorax, abdomen, and legs devoid of the long pubescence of the male. In the wings the subcostal vein is shorter, and the radial and cubital veins apically curved.

S. nigropilosus differs considerably from the other species of *Sciapus*, and will probably have to be placed in a distinct genus. It is a fairly common species, and may be found settled on the leaves of shrubs, or more rarely on the ground in sunny places. My dates range from October 1 to October 27.

Besides the foregoing species, a species was described by Macquart under the name of *Psilopus sidneyensis* from "Sidney Island and Tasmania." The former island, as has been pointed out by Miss Ricardo (Ann. Mag. Nat. Hist., May, 1914), belongs to the Phœnix Group, in Polynesia. These islands are situated close to the equator, and it seems unlikely that a delicate insect like the present should be common to two such widely differing localities. Under these circumstances, I think that some mistake has probably arisen as to its place of origin. The species is described as green; scutellum violet; wings hyaline. Length, male, 8 mm. In Macquart's figure the posterior cross-vein is given as gently waved.

61. ARACHNOMYIA, Gen. nov. (Fig. 50).

Acrostichal bristles biserial; antennæ situated very high, with the arista dorsal; palpi large and conspicuous; eyes in the male joined at a short distance below the antennæ; abdomen long and slender; hypopygium large, but not recurved beneath the venter; legs very long, extremely slender, and practically bare; wings with the discal vein simple, but with a slight upward curve before reaching the margin.

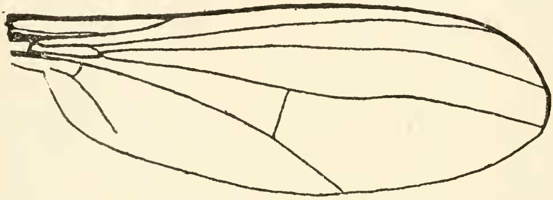

Fig. 50. Wing of *Arachnomyia arborum.*

Head a little broader than the thorax; the lower part of occiput bearing dense hairs. Proboscis thick and fleshy. Palpi large and conspicuous, rounded, with a short terminal bristle. Eyes in male joined for a very short distance at a point one-third the length of the face below the antennæ. Antennæ situated very high, the length, without the arista, about half that of the head, the first and second joints short and broad, the third narrowed apically, with the arista springing almost from its base. Thorax with two median rows of acrostichal bristles, and, on each side, one row of longer dorsocentral and humeral, posthumeral, notopleural, supraalar, and postalar bristles; scutellum with two long marginal bristles. Abdomen long, slender, and bare; hypopygium large, but not recurved beneath the venter. Legs very long and spidery, the middle pair the longest, the tarsi longer than the tibiæ, the whole bare both of pubescence and of bristles, except for one bristle situated about the middle of the posterior tibiæ. Wings with the normal venation of the family, the discal vein with a short upward curve before reaching the wing-margin.

This genus is easily distinguished from all the other Tasmanian genera of *Dolichopodidæ* by the very long spidery legs. Only one species is at present known.

ARACHNOMYIA ARBORUM, Sp. nov. (Fig. 50).

Thorax bronze, with a bright green median stripe; abdomen dark bronze; legs entirely yellow; wings hyaline.

Length. Male, 6 mm.

Hab. Bagdad Valley.

Male. Face snow-white; proboscis dark brown; palpi light orange; there is a fringe of short white postocular bristles, and the lower part of occiput bears dense white hairs; vertex with long black bristles. Thorax bronze, with a median stripe of bright green, which does not reach as far as the scutellum; thoracic bristles black; scutellum bronze, with two very long, black, nearly-upright, marginal bristles. Abdomen bare, dark bronze, with ruddy reflections; genitalia very large, nearly globular, and raised far above the dorsum. Legs remarkably long and slender, light yellow, quite bare of pubescence or bristles, except for one black bristle about the middle of the posterior tibïæ; the middle legs the longest, the tarsi longer than the tibiæ; the anterior tarsi have the first joint the longest, the middle tarsi the second joint the longest; in the posterior tarsi I am unable to make out any articulation between what should normally represent the first and second joints, consequently the basal joint is of immense length. Wings hyaline.

This species frequents tree-trunks in the bush. The long legs seem an adaptation to its mode of life, and is a similar development to that found in certain species of the families *Dexidæ* and *Micropezidæ* which have similar habits. It occurs during January, but seems to be generally scarce.

62. DIAPHORUS, Meig.

Eyes of the male touching on the front; antennæ with arista dorsal; wings broad, with the cubital and discal veins almost parallel.

Head as broad as, or a little broader than, the thorax; the vertex not excavated. Eyes joined above the antennæ in the male, separated in the female. Antennæ with the three joints all short, the third rounded, and bearing a long dorsal arista, which is microscopically haired. Thorax metallic, but of rather dull appearance; acrostichal bristles biserial, and there are also five dorsocentral, one humeral, one posthumeral, two notopleural, three supraalar, and one postalar bristle. Abdomen short, with hindmarginal bristles; apex in male with four blunt bristles; hypopygium small, and almost concealed beneath the apex. Legs of medium length, usually with only a few small bristles, but sometimes distinctly bristly; anterior tarsi in the male with the pulvilli enlarged. Wings rather broad, the cubital and discal veins almost parallel, though both may be gently curved down towards the margin.

The species belonging to this genus are small, dull metallic flies, which may often be seen resting on tree-trunks. They can be recognised without difficulty by the eyes of the male being joined above the antennæ. In Tasmania two species are known to occur.

Table of the Tasmanian Species of Diaphorus.

1. Abdomen with the second segment whitish, remainder dark brown; legs in male very bristly, the bristles on inner side of posterior tibiæ extremely long. Setosus, Sp. nov.
2. Abdomen entirely dark brown; legs with only a few short scattered bristles. Communis, Sp. nov.

Diaphorus setosus, Sp. nov.

Thorax dull metallic green; abdomen dark brown, with the second segment whitish; femora black; tibiæ light brown; legs in the male very bristly; the bristles on the inner side of the posterior tibiæ extremely long.

Length. Male, 4 - 4.5 mm.

Hab. Hobart.

Male. Eyes red, large, joined on the front, and only slightly separated on the face, which is consequently very narrow. Antennæ black. Thorax dull metallic bluish-green; thoracic bristles very long; scutellum similarly coloured to the thorax, with two very long and two short marginal bristles. Abdomen dark brown, with the second segment whitish, the whole shining, but not metallic, and bearing black, lateral, hindmarginal bristles and shorter black hairs; apex with four black bristles. Legs with femora black; tibiæ and first joint of tarsi light brown, remaining tarsal joints black; all femora with numerous black bristles, which are longest on the posterior pair; anterior and middle tibiæ with a few black bristles, the middle tibiæ with long spurs; posterior tibiæ with long, stiff, black bristles outwardly, and very long, thin bristles inwardly; first joint of posterior tarsi with short bristles; all joints, in addition to the bristles mentioned, bear a fine black ciliation. Wings hyaline, the cubital and discal veins almost equidistant throughout, and curved down slightly at their ends towards the wing-tip; anal vein short and sinuated; halteres whitish-yellow.

This species frequents logs in the bush during the month of November; it seems to be somewhat uncommon.

DIAPHORUS COMMUNIS, Sp. nov.

Thorax dull green, frequently a little brownish; abdomen dark brown, unicolorous; legs entirely black (♂) or with tibiæ dull brown (♀), with only a few short bristles; posterior tibiæ without any long bristles on the inner side.

Length. Male, 4 mm.; female, 3.5 mm.

Hab. Mangalore. (Probably generally distributed.)

Male. Eyes joined on two-thirds of the front, leaving a small frontal triangle between the eyes and the antennæ; face rather narrow. Antennæ black. Thorax dull green, frequently rather brownish, and sometimes with two green median stripes; thoracic bristles rather long; scutellum similarly coloured to the thorax, with two long and two very short black marginal bristles. Abdomen shining dark brown, with fairly dense black lateral pubescence, and four black apical bristles. Legs black; femora fringed with black pubescence; anterior and middle tibiæ almost without bristles; posterior tibiæ with a few scattered black bristles. Wings with the cubital and discal veins almost equidistant throughout, and curved down gently at their ends towards the wing-tip; anal vein long and nearly reaching the margin; halteres yellow.

Female resembles the male very closely, but the eyes are well separated, the abdomen shorter and broader, and the legs generally lighter.

This species may be distinguished from *D. setosus* by the unicolorous abdomen, and, in the male, by the much less bristly and darker legs. It may be met with commonly settled on tree-trunks and on stones, and is probably generally distributed. My dates range from November 2 to January 26.

63. LIPAROMYIA. Gen. nov. (Fig. 51).

Arista situated right at the base of the third antennal joint, which in the male is very long, narrow, and pointed, in the female short and rounded; the first joint of arista short; thorax with acrostichal bristles uniserial; wings with the radial, cubital, and discal veins parallel and equidistant.

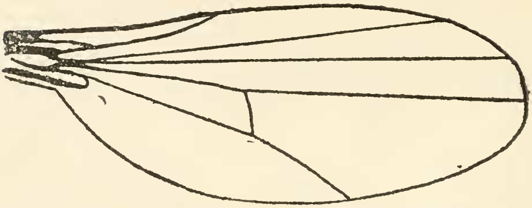

Fig. 51. Wing of *Liparomyia sedata.*

Eyes well separated on the front in both sexes, but, in the male, only narrowly divided on the face. Antennæ, without the arista, a little shorter than the head, the first and second joints very short, the third, in the male, as long as the first two together, humped at the base, then slender and pointed, and bearing a long arista which springs from its base; the arista is two-jointed, the first joint being short, and less than half the length of the third antennal joint; in the female the third joint is short and rounded. Thorax with one row of acrostichal bristles, which are very short, two rows of dorsocentral bristles, and humeral, posthumeral, notopleural, supraalar, and postalar bristles; scutellum with two very long, widely separated, marginal bristles. Abdomen longer and narrower in the male than in the female, nearly bare in both sexes, but bearing a few small bristles; in the male the hypopygium is curved forward beneath the venter, but only for a short distance. Legs simple in both sexes; posterior femora with short bristles. Wings short and rather broad, the radial, cubital, and discal veins straight and almost equidistant; anal vein apparently wanting.

This genus, in the form of the antennæ, resembles *Anepsiomyia, Bezzi.*, but is distinguished from that genus by the very much shorter first joint of the arista. Only one species is at present known.

LIPAROMYIA SEDATA, Sp. nov. (Fig. 51).

Thorax brown; scutellum dull metallic blue-green; abdomen brown; legs yellow-brown, with the femora dark brown above; wings hyaline.

Length. Male and female, 2 mm.

Hab. Mangalore.

Male. Antennæ brownish-black, of the form described under the generic characters. Thorax dark brown, unstriped; thoracic bristles black; scutellum dull metallic blue-green, with two very long, widely-separated, marginal black bristles. Abdomen brown, with small hindmarginal black bristles; hypopygium similarly coloured and fringed with black pubescence. Legs with femora dark brown above, yellow-brown below; tibiæ and tarsi yellow-brown, the tarsi apically darkened; anterior and middle femora almost bare, posterior femora with a row of rather long, weak, black bristles; posterior tibiæ with shorter, but stiffer, black bristles; anterior tibiæ bare; middle tibiæ with a few black bristles. Wings hyaline, with dark veins.

Female resembles the male very closely, but the third antennal joint is short and rounded, and the legs are lighter.

Of this species I have come across two specimens, a male taken on October 26, 1912, and a female, settled by the side of a pond, on April 26, 1914; from its small size it is apt to be overlooked, and the species may not be uncommon.

64. Hydrophorus, Fall.

Wings having the last part of the postical vein not longer than the posterior cross-vein; antennæ with the third joint rounded, and the arista dorsal.

Head as broad as, or a little broader than, the thorax; vertex more or less excavated. Eyes well separated in both sexes. Antennæ situated rather high, all joints short, but the third a little the longest, rounded apically, and bearing a long, two-jointed arista. Thorax with one row of small acrostichal bristles, two rows of dorsocentral bristles, and, on each side, a humeral, a posthumeral, two notopleural, and a postalar bristle, scutellum with four marginal bristles. Abdomen short, the hypopygium of the male almost concealed, and not recurved beneath the venter. Legs of medium length, and frequently showing sexual characters; femora and tibiæ with bristles. Wings rather long and narrow, sometimes spotted, the last part of the postical vein (i.e., the part from the discal cell to the wing-margin) very short, and not longer than the posterior cross-vein, so that the discal cell is very long, and approaches close to the wing-margin.

The species belonging to this genus are confined to the neighbourhood of water, on the surface of which most of them are able to run. A Tasmanian species, which is unknown to me, was described by Macquart.

HYDROPHORUS CUPREUS, Macq.

Copper-coloured, with green reflections; abdomen with segmentations white; legs yellow; wings clear, with a yellowish tinge.

Length. Female, 4 mm.

Hab. "Tasmania."

In Macquart's figure of the wing the discal vein is given as converging apically towards the cubital vein. The species is unknown to me.

Family XI. PHORIDÆ.

Very small flies, with a peculiar venation, the wings having two strong anterior veins, reaching only half-way to the tip, and three or four faint veins running diagonally across the wing.

Head rather small, about the same breadth as the thorax, the vertex usually bristly. Eyes separated in both sexes. Antennæ short, the third joint concealing the other two, and bearing an apical or dorsal arista. Thorax large, and greatly arched, with, usually, posterior bristles. Abdomen rather short, the genitalia of the male often large, of the female small and projecting. Legs rather stout, femora large; tibiæ frequently with a few bristles, and spurred; posterior tarsi lengthened. Wings usually large and broad, but sometimes wanting; three longitudinal veins present, the first very weak, and partly coalesced with the second; the second strong and always simple; the third very strong, either simple or forked, or with the apex thickened, and extending to about the middle of the costa; three or four light veins also present, extending diagonally from the third vein to the hinder margin; costa with the basal half usually bristly.

This family seems to be very poorly represented in Australia, only five species having so far been described. One of these is a curious, wingless form, discovered by Lea in an ants' nest in Victoria, and described by him under the name of *Euterimorpha abdominalis*. In Tasmania only one species is at present known to occur.

65. APHIOCHÆTA (Fig. 52).

Anterior frontal setæ proclinate; middle tibiæ devoid of any setæ near the base; wings with the basal part of costa bristly, and the third longitudinal vein forked.

Head situated low down in front of the greatly arched thorax, and about equal to it in breadth. Antennæ with the third joint rounded, and bearing a dorsal arista. Palpi prominent and bristly. Front with numerous strong setæ, the anterior ones much shorter than the others and proclinate. Thorax much arched, dorsally bare, but with a few strong posterior bristles. Abdomen short, rather robust, and altogether without bristles. Legs simple, tibiæ spurred, but without bristles. Wings with the basal part of costa bristly, and the third longitudinal vein forked.

APHIOCHÆTA NEBULOSA, Walk. (Fig. 52).

Syn. *Phora nebulosa*, Walk.

Thorax and abdomen brownish-black; legs yellow; wings hyaline.

Length. Male and female, 2.5-3 mm.

Hab. Mangalore. (Probably generally distributed.)

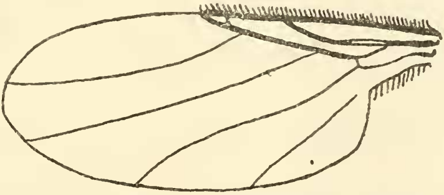

Fig. 52. Wing of *Aphiochæta nebulosa*.

Male and female. Front and antennæ brownish-black. Palpi yellow, with black bristles. Thorax brownish-black, almost bare, but with long posterior black bristles. Abdomen brownish-black, bare. Legs yellow or brownish-yellow, the posterior tibiæ and tarsi frequently darkened; femora somewhat swollen; tibiæ spurred, but without bristles. Wings hyaline, with veins light brown; the second longitudinal reaches the costa about half-way between the base of wing and apex of third longitudinal vein; third longitudinal forked; halteres yellow.

This species occurs commonly on windows at Mangalore, and is probably generally distributed. My dates range from April 7 to May 13.

Addenda et Corrigenda. Part I.

LEPTIDÆ.

METOPONIA, Macq. This genus should probably be placed in the *Stratiomyidæ*, subfamily *Berinæ*; no specimen has yet come to hand, so its position is still open to doubt, but there is reason to believe that the *Xylophaginæ*, in which Macquart placed it, do not occur in the Australian region.

STRATIOMYIDÆ.

LECOGASTER. Prof. Bezzi has been good enough to point out to me that this name is preoccupied. I, therefore, propose in its place the name *Lecomyia*.

ODONTOMIA MARGINELLA, Macq. The specimen referred to as being in the collection of the Department of Agriculture, Hobart, proves to be merely a small variety of *O. amyris, Walk.*; no recent specimen of *O. marginella* is, therefore, known. The distinguishing character of the species is found in the black femora.

ODONTOMYIA CARINATA, Macq. This species should be sunk as synonymous with *O. amyris*.

ODONTOMYIA SUBDENTATA, Macq. (Syn. *O. annulipes*, Macq.) A female, apparently belonging to this species, was taken by Mr. Hardy at Geeveston on December 25, 1914. It resembles *O. amyris*, but differs from that species in having the fulvous lower third of front divided from the fulvous face by a black band, which slopes down on either side towards the eyes. The male of *O. subdentata* has the face entirely black. This species should, therefore, be added to the Tasmanian list.

NEMESTRINIDÆ.

TRICHOPSIDEA ÆSTRACEA, Westw. In the British Museum Collection are four specimens of this species, three of which are from Tasmania, the fourth being from Queensland. The species may be recognised by the extremely faint wing-veins, only the two diagonal veins being distinct.

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